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ABSTRACT

Long range effects of early public land surveys, the distinction between towns and townships, and the significance of town government in modern Wisconsin are portrayed in this teacher's guide for upper elementary grades. With supplementary materials it could be used in a unit on local or Wisconsin geography, as an introduction to problems of urban growth, or as a segment on governmental entities which make up a modern metropolitan area. Two filmstrips are employed to present the facts. Part I describes the public land survey and its effects particularly on farm boundaries, field shapes and plowing patterns, road locations, and community shapes and patterns. Part II deals with the effects of the survey on patterns of local government in Wisconsin and raises some questions on the consequences of 19th century governmental patterns as they complicate 20th century urban growth. Both filmstrips are explained in their entirety, illustrating each frame and its accompanying script. Supplementary materials in the booklet relate the long range significance of the Land Ordinance of 1785, early policy questions of land use, methods of establishing and maintaining boundary lines, and the numbering and describing of sections, townships, and ranges. Additional materials include maps, tests, a bibliography, and suggested uses of the materials. Filmstrips are not included. (BL)

TOWNS and TOWNSHIPS

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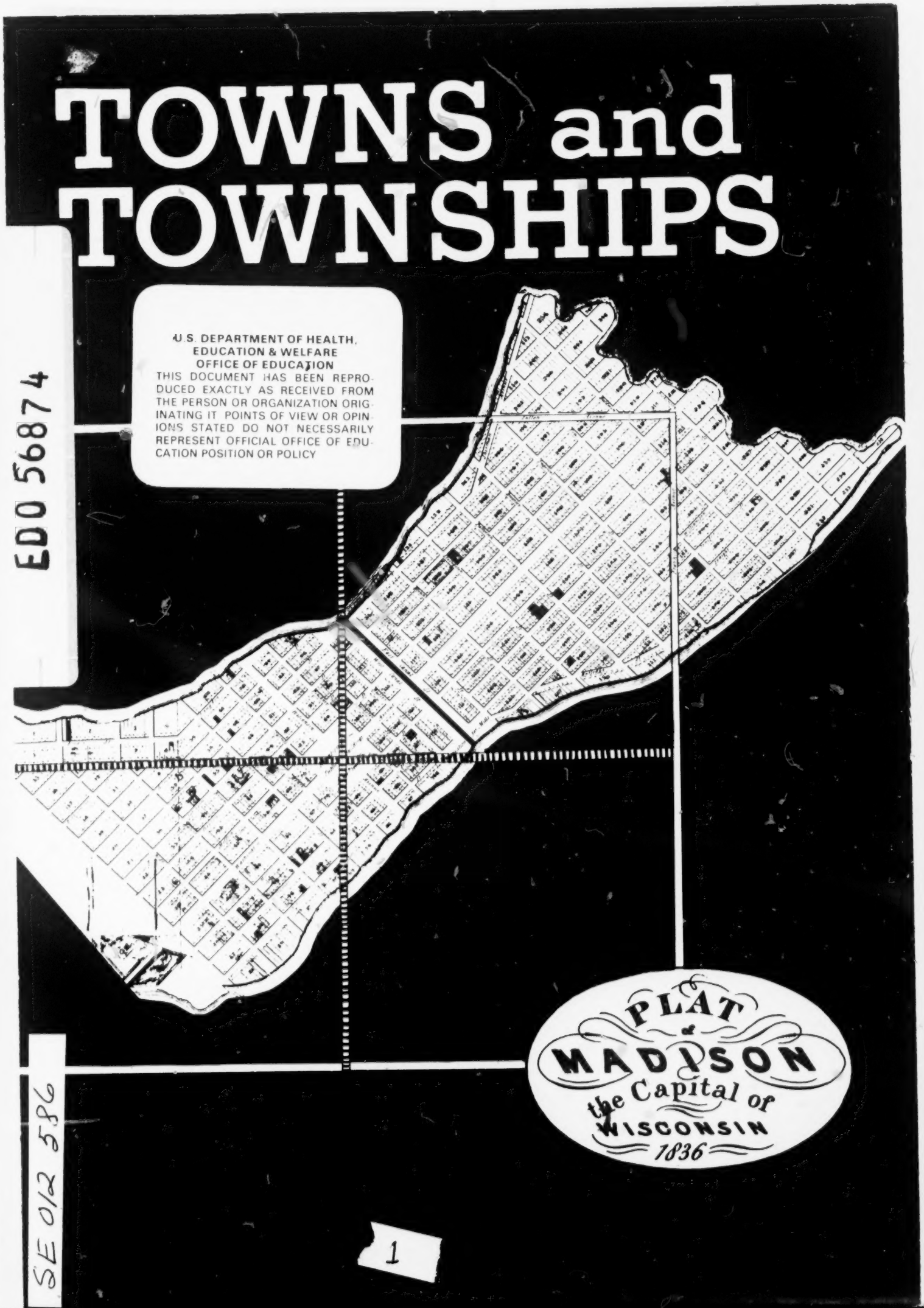

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Instructional Materials About Our Community

a project of...

The Instructional Materials Center
Madison Public Schools
Madison, Wisconsin

TOWNS AND TOWNSHIPS

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The filmstrip and guidebook were produced by the Instructional Materials Center, Madison Public Schools, Administration Building, 545 W. Dayton Street, Madison, Wisconsin 53703.

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OBJECTIVES

Increasing pressures in the Wisconsin Legislature for local government reforms and for a state urban growth policy make the knowledge of existing levels of local government essential for students who will be studying relevant, contemporary issues in their state.

Rapid urbanization of Wisconsin has left the majority of students with little knowledge or understanding of town government. In addition, the terms "town" and "township" as used in Wisconsin are often confused. This set of materials has been constructed to clarify these terms and to demonstrate their significance in modern Wisconsin.

The set can be used in a unit on local or Wisconsin geography and with additional materials can acquaint students with the various governmental entities which make up a modern metropolitan area.

Towns and Townships can be used as an introduction to problems of urban growth. Part II of the script suggests one of the complications of inter-governmental relationships created by urban growth in Wisconsin, and the Supplementary Materials Kit described on page 3 provides approaches for exploring other aspects of the problem.

As a result of this unit, students should be able:

to define "town" and "township" as the terms are used in Wisconsin

to list at least four long range effects of the early public land surveys

* to list the various types of local government units in Wisconsin

* to explain the relationships of different levels of local government involved in such issues as pollution control, zoning and planning, transportation, etc.

* These objectives are dependent upon use of materials and approaches such as those suggested on page 3.

SUGGESTED USES OF MATERIALS

Two separate presentations

The script is divided into two parts. Part I describes the public land survey and its effects particularly on farm boundaries, field shapes and plowing patterns, road locations, and community shapes and patterns. Part II deals with the effects of the survey on patterns of local government in Wisconsin and raises some questions on the consequences of 19th century governmental patterns as they complicate 20th century urban growth.

It is recommended that the two parts be shown on separate days and that time be allowed for review and discussion of Part I before going on to Part II.

* * * * *

The "test"

A twenty question "test" accompanies Part I and a fifteen question "test" accompanies Part II. Each "test" is passed out to students before the presentation and students are asked to fill in the blanks as the pictures are shown. This not only keeps attention focused upon the presentation but also gives the student a summary of the material presented for later review.

* * * * *

Adapting set to each local community

Schools are encouraged to adapt this script and other materials on Towns and Townships to meet local needs.

As used in the Madison Public Schools, this set has been individualized for each middle school by using a slide set rather than a filmstrip and inserting after slide 4 a picture of a familiar nearby intersection of two streets which follow section or quarter-section lines.* The script reads:

> "The location of the intersection of _____ near _____ School was determined at the same time — when this area was inhabited only by roaming Indian tribes and occasional French fur traders. How could an intersection be determined before there were any roads or even any settlers? See if you can solve these mysteries after hearing this story."

* City streets often follow section lines or quarter-section lines for reasons explained in script, frames 37-39, Part I.

Schools in other communities could construct their own localized slide sets on Towns and Townships by purchasing this filmstrip, cutting it apart, and mounting slides in ready-mount slide forms available at most photographic suppliers.

With the flexibility of such a slide set, local schools could then either substitute illustrations taken locally for such frames as 16-28 of Part II or could add local illustrations to supplement the Madison area examples.

* * * * *

Supplementary Materials Kit

Middle schools in Madison also have available to them a Supplementary Materials Kit containing over 30 items including bulletin board displays, aerial photographs, background information, and additional resources to launch individual or small group research projects.

Although these materials were developed to use in social studies (combining concepts of local geography, history and political science), suggestions of possible inter-disciplinary approaches are given in the Supplementary Materials Kit which includes the nucleus for both language arts and mathematics projects as well as work in social studies.

Much of the material in these kits could be adapted and localized by other schools for use at junior and senior high levels. Kits including filmstrips can be purchased from:

Local Materials Project
Madison IMC
545 W. Dayton Street
Madison, Wisconsin 53703

* * * * *

Additional Materials Available

Excellent maps of Wisconsin communities can be purchased from: Dept. of Transportation, Room 534-Maps, 4802 Sheboygan Avenue, Madison, Wis. 53702.

Aerial Photography Base Maps for the State of Wisconsin made in 1966, can be purchased through Gerald Pauli, Room 36B, Reprographics Dept., 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

Also check with your local city engineer and planning department.

Enclosed with this booklet are duplicates of several pages which can be used for bulletin board displays or as masters for ditto copies for students.

BIBLIOGRAPHY

On public land surveys:

Carstensen, Vernon. The Public Lands. University of Wisconsin Press, 1968 (Paperback, $3.25).

"Surveying Our Public Lands," 16 pages, $.15, United States Department of the Interior, Bureau of Land Management, 1969, Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

"The Public Domain," 14 pages, $.10, 1966, Supt. of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

"With Chain and Compass," 3 pages, $.10, Wisconsin Then and Now, August, 1969, State Historical Society of Wisconsin, 816 State Street, Madison, Wisconsin 53706.

On land tenure and a land ethic:

"Land Tenure in the United States," $.50, Agriculture Information Bulletin, Number 338, 1965, U.S. Government Printing Office, Supt. of Documents, Washington, D.C. 20402.

Leopold, Aldo. A Sand County Almanac. Oxford University Press, 1949, 1962, $4.75, (Paperback, $1.75).

On town government in Wisconsin:

Wisconsin Blue Books, 1952 and 1968.

"Know Your State — Wisconsin," 53 pages, The League of Women Voters of Wisconsin, April, 1969, 433 West Washington Avenue, Madison, Wisconsin, $.35 for single copies (postage included), quantity orders — $.25 per copy plus postage.

"A Blue Print for Local Government Reform in Wisconsin," February, 1969, Summary of the Report of the Task Force on Local Government Finance and Organization (Tarr Task Force), Secretary of Revenue, State Office Building, One West Wilson, Madison, Wisconsin 53702.

SUPPLEMENTARY MATERIALS

WHEN WERE GOVERNMENT SURVEYS BEGUN?

The United States Congress, eager for revenue from the sale of lands in the Northwest Territory, adopted the Land Ordinance of 1785 providing for orderly rectangular surveys marking the land off into six-mile square TOWNSHIPS which were then subdivided into one-mile square units called SECTIONS. Each section contained 640 acres. Each quarter section then contained 160 acres.

In 1862 the U.S. Congress passed the Homestead Act to encourage western settlement. Under this law any settler could obtain a quarter section of land (160 acres) free simply by settling on the land for five years and filing a claim.

The outlines of many "Homestead farms" can still be traced in Wisconsin, but today's farms are usually larger than the original 160 acres because of modern farming techniques.

* * * * *

EARLY SURVEYS IN WISCONSIN

Lucius Lyon, a Vermont-born surveyor and politician who became an important figure in early Wisconsin history, was appointed in 1831 to survey the north boundary of Illinois and establish the location of the 4th principal meridian. At the intersection of these two important lines, his crew built a six-foot mound of earth. All later Wisconsin surveys started from that basemark.

A country road later obliterated the border-meridian mound, but modern surveyors have relocated this point by using old maps and field books with notes kept by Lucius Lyon. A new concrete monument has been placed on this spot. An official Wisconsin Marker is being placed on an acre of land at the Wisconsin-Illinois border and Wisconsin Highway 80 just south of Hazel Green and a quarter mile west of the monument. (See article "With Chain and Compass," Wisconsin Then and Now, State Historical Society of Wisconsin, August, 1969)

* * * * *

WHAT IS A TOWN? A TOWNSHIP?

The terms town and township are often misunderstood.

A town in Wisconsin is a political subdivision of a county. Town government was originally designed to provide local government services for rural areas of the state.

Township in Wisconsin refers only to a surveyor's unit. A surveyor's township is a square six miles on a side and consists of 36 square mile sections.

LONG RANGE SIGNIFICANCE OF LAND ORDINANCE OF 1785

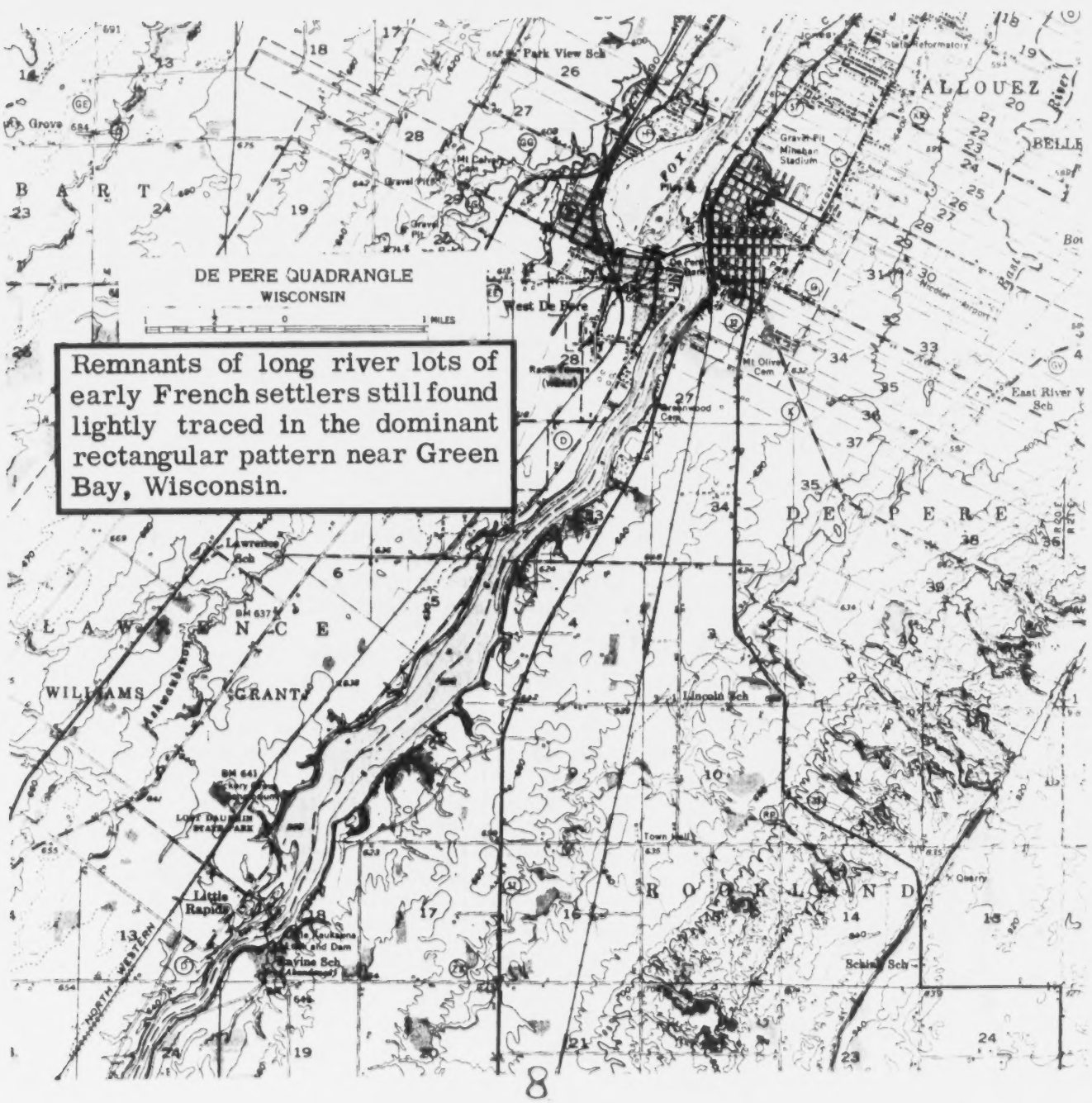
Source: The Public Lands
Vernon Carstensen, ed.,
The University of Wisconsin Press,1968
Introduction pp. xvi — xvii

"The lines of the surveys, as the map shows, move rigidly east and west, north and south, and a grid system has been implacably imposed upon the land. Only impenetrable swamp, as in Florida, or wild, impassable mountain terrain, as in some of the western states, have interrupted the march of the straight survey lines. The patterns of French grants, the lots which the French stretched back from the rivers, and the sprawling but vaguely located Spanish grants have rarely survived, although at Green Bay and Prairie du Chien in Wisconsin a few remnants of the long river lots of the early French settlers can still be found lightly traced in the dominant rectangular pattern, and some light marks of the Spanish grants can be found on the land from the Gulf states west to California.

"The rectangular survey — this cheap and simple way of surveying and describing land — was carried into Texas and north into Manitoba and the western Canadian provinces. The system was very useful, particularly in the years after 1850, when land settlement reached vast proportions. Between 1850 and 1900, the number of American farms increased from 1,449,000 to 5,737,000. Had a system of describing land by metes and bounds been employed, with the almost infinite possibility of odd-shaped parcels and hence overlapping and conflicting claims, lawsuits, and neighborhood feuds could have been one certain harvest of this vast movement of land-seekers on to new land. Section lines drawn straight and clearly marked, like good New England fences, make good neighbors, or at least neighbors not at law over property boundaries. The rectangular survey had other effects. The straight lines of quarter sections and larger units controlled to some extent the shape and size of fields and hence influenced the tillage. This was something that Washington and other farmers foresaw and complained about in 1785; soil conservationists at a later date lamented the effects. And the patterns imposed on the land by surveys in turn imposed patterns upon the communities that took shape on those lands. This was already clear by the end of the colonial period. The New England town system assured a far different community, even in the rough hill country where economic resources were sparse and scattered, from the kind that came into existence on a basis of the haphazard and dispersed settlement of the southern highlands. The survey township in the public domain provided the basis for a convenient and easily identifiable unit for local government. Roads were laid out, and tax rolls, election districts, and common schools were organized and managed in accord with the township.

"More important in the development of the Republic were the decisions about who should get the lands, under what circumstances, and at what price. The Republic, still operating under the Articles of Confederation, faced the task of disposing of the first public domain without the anchors of older societies: it had no king, no established church, no hereditary aristocracy. It was a government new and untried, open on all sides to be influenced by all the forces of

society in the distribution of an area of land unmatched in the history of western governments in size, richness, and variety of resources. Moreover, the land was unencumbered by a native population possessed of sufficient enduring strength to compel the newcomers to accommodate to it. Decisions made by the central government, or not made, were profoundly influential in shaping the economic and political structure of the society based upon these new lands. And just as the decisions about the nature of the survey of the Old Northwest provided the basis for a survey system that would be carried across the land, so many of the decisions made by the Congress in 1785 and 1787 concerning the distribution of the land became an enduring part of the laws governing the disposal of the public domain."



8

AN EARLY POLICY QUESTION FOR THE UNITED STATES

How Should the Territory of the New Nation Be Used?

The Congress of the Confederation had pledged that the jointly owned territory should "be disposed of for the common benefit of the United States."

However, there were two major points of view on the disposal of this "splendid common property" of the newly formed United States. Some people thought the land should be used as a source of revenue. Others were more concerned with the proper spread of population.

As historian Payson Jackson Treat observed, "Of what value would these western lands be if we could not hold them? How long would England or Spain allow that rich Northwest to remain unpeopled? Should not Congress endeavor to encourage the very best form of occupation in that region — the occupation of sturdy pioneers? . . . (On the other hand) the idea of revenue was a very comforting one at this time, when the national credit was all but worthless . . . when interest and principal on the foreign debts were in arrears."

If the revenue idea was to prevail, the land system must provide for the sale of as much land as possible at as high a price as possible. If the idea of settlement was to predominate, then cheap lands or free lands, governmental surveys, and strict provisions for occupation and improvement must be incorporated in the system.

As with most of the crucial decisions in the development of this country, there was some compromise in the actual land system adopted by the Congress of the Confederation in 1785.

For a more detailed account of this problem and its resolution, see "Origin of the National Land System under the Confederation" by Payson Jackson Treat in The Public Lands, edited by Vernon Carstensen, University of Wisconsin Press, 1968.

A SYSTEMATIC METHOD FOR ESTABLISHING AND MAINTAINING BOUNDARY LINES

Source: Notes on Land Surveying
J. Kent Roberts, University of Missouri, 1962

Early Land Surveys

"In the early colonies, property lines were described in terms of natural features such as streams, highways, trees, stones and fences and resulted in irregular tracts that could and did result in obvious complexities when such natural objects were changed or lost. This system is still in effect in the eastern states (metes and bounds) . . .

"When the Continental Congress considered the disposal of the western lands a more systematic method was devised. Thomas Jefferson was chairman of the committee which submitted the plan setting up townships of 36 square mile sections. The grid system has been in use since the plan was adopted in 1785 in all of the continental states and Alaska except for Texas and, of course, the eastern states."

Modern Land Surveys

Since the purpose of land surveys is to establish and maintain boundary lines and since these lines define and limit property rights, land surveying is subjected to legal principles. "Therefore, while the surveyor may use modern instruments and methods, he is governed by laws and ancient legal principles. If the legal aspects are unknown or ignored by him, his work — no matter how technically good — may produce chaos."

"Normally, the present day land surveyor is concerned more with re-surveys than with original surveys. Since rather crude instruments and methods were used in many of the early surveys, it is often very difficult to 'follow in the footsteps' of the original surveyor. Frequently more detective work is required than surveying in the search for old monuments using all available records and physical evidence in the field."

THE LEGAL DESCRIPTION OF LAND

A certain 80 acre parcel or piece of land in southern Wisconsin is described in this way:

> The West One-half (W1/2) of the Southwest One-quarter (SW1/4) of Section 32, Township Six North (T6N), Range Eight East (R8E), Dane County, Wisconsin.

This can be abbreviated as follows:

W1/2SW1/4, Sec. 32, T6N, R8E or $W^2\ SW^4$ 32-6-8

After studying the following pages, you will be able to decode this legal description of land.

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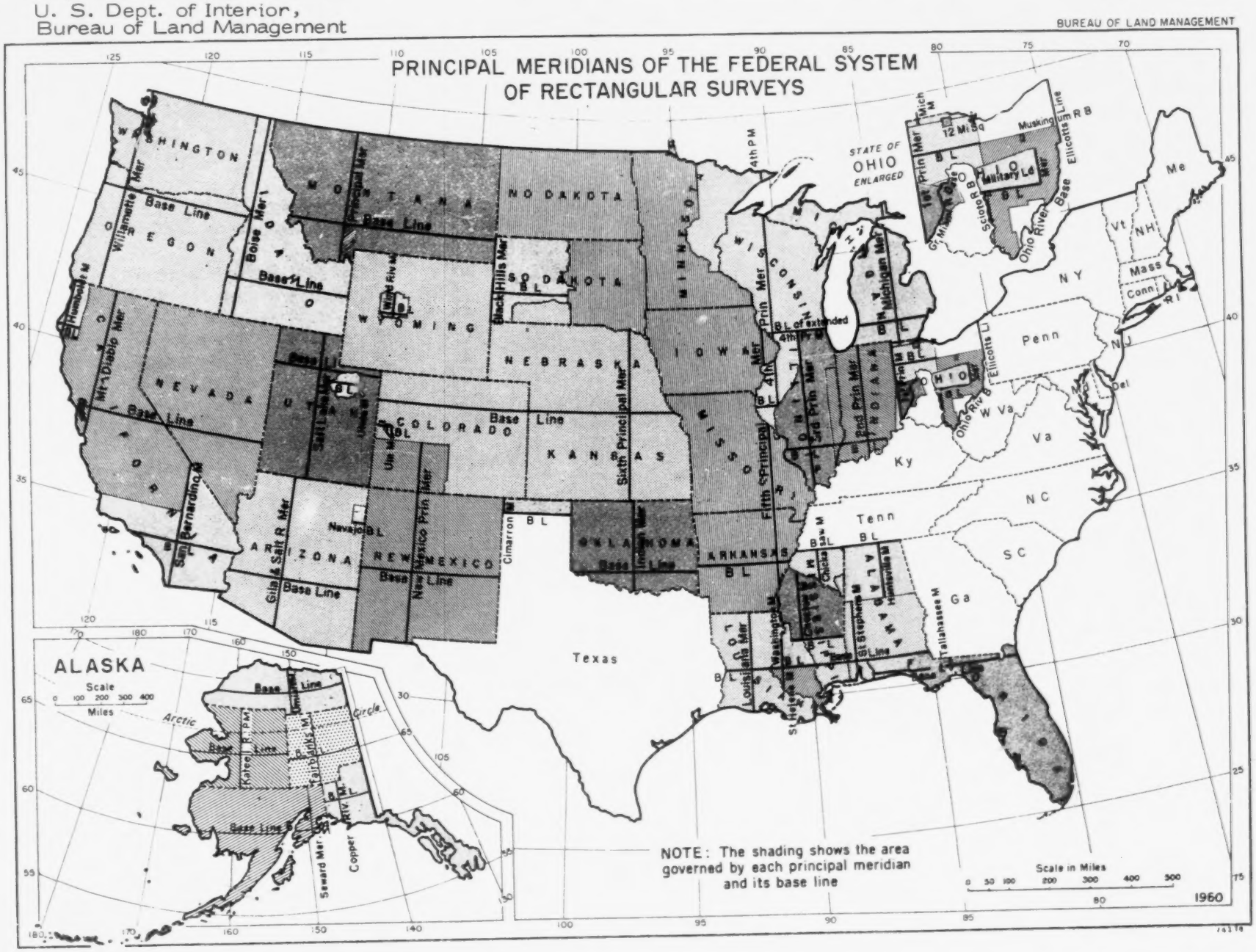
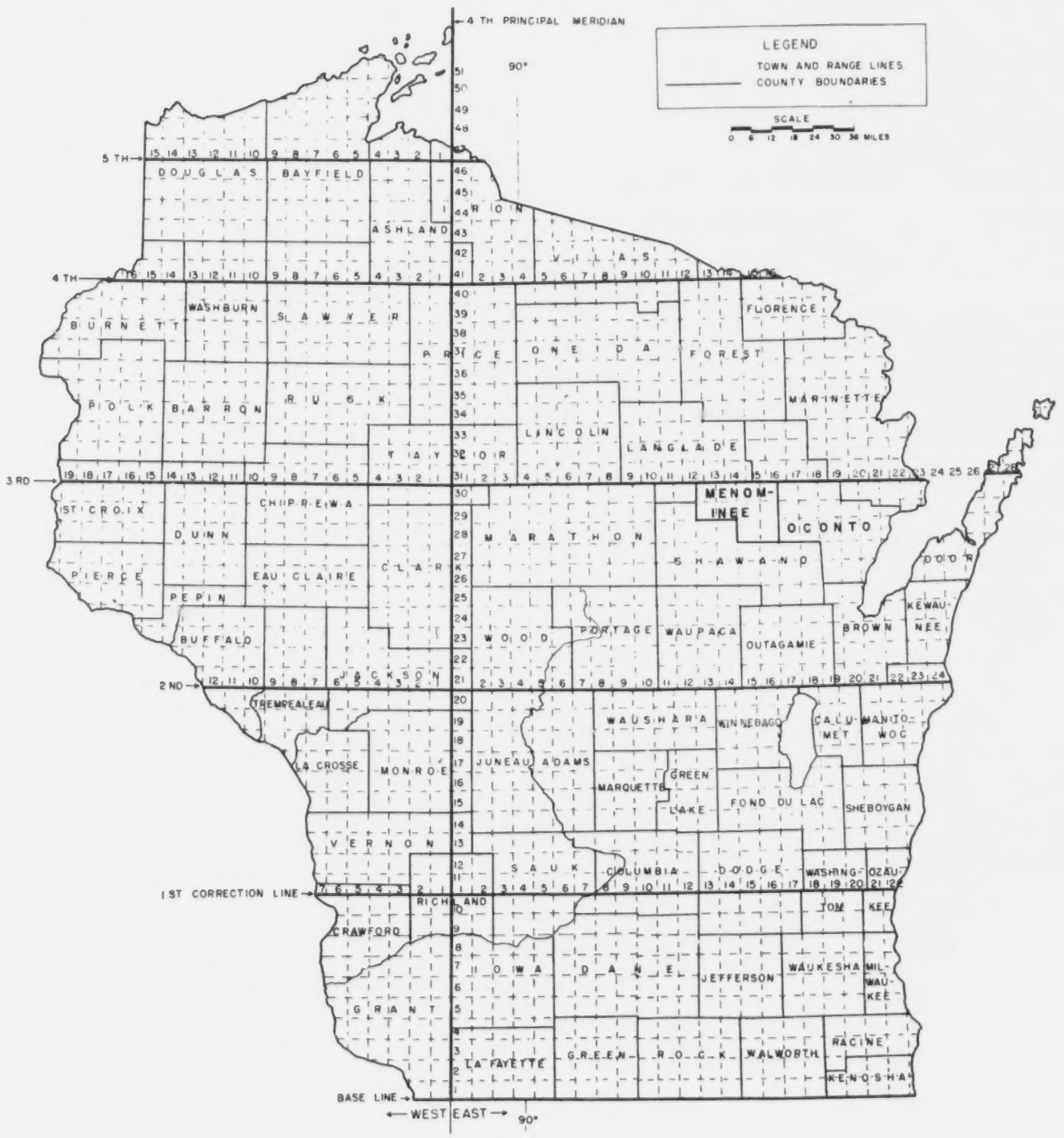
Bureau of Land Management



MAP OF WISCONSIN SHOWING THE PRINCIPAL MERIDIAN, BASE LINE, CORRECTION LINES AND NUMBERS OF THE TOWNSHIPS AND RANGES.



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THE NUMBERING OF TOWNSHIPS AND RANGES

In the public land surveys of the Northwest Territory, government surveyors used a particular numbering system to designate each six-mile square which they surveyed.

The numbering in Wisconsin begins at the intersection of an east-west BASELINE (here the boundary between Illinois and Wisconsin) and a north-south PRINCIPAL MERIDIAN.

Surveyors designated the numbered squares north and south as TOWNSHIPS.* Thus, Dane County includes Townships 5 through 9 North of the baseline.

They designated the numbered squares east and west as RANGES. Dane County includes Ranges 6 through 12 East of the meridian.

A major portion of the City of Madison is located in the center square of Dane County. This square is designated at Township 7 North, Range 9 East.

Apparently an error crept into the survey between Ranges 9 and 10 just above the baseline. The error was perpetuated until the 1st Correction Line, just north of Dane County. This error explains the peculiar jogs in Dane County's boundaries.

THE NUMBERING OF SECTIONS WITHIN A TOWNSHIP

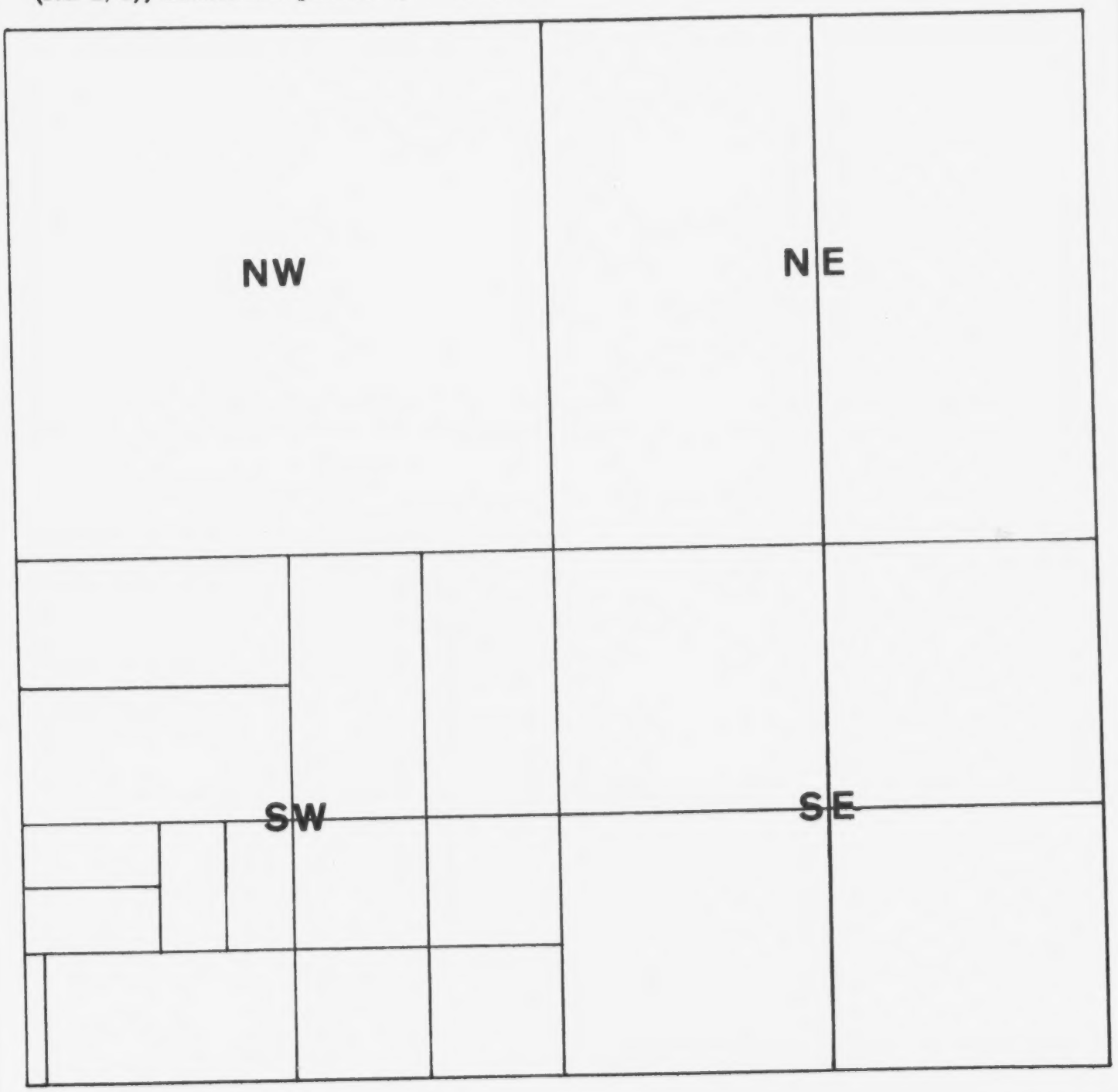
All government rectangular surveys use a standard numbering system of sections within a township. This makes it easier to describe the precise location of a piece of land and to give an exact legal description of that land.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

* Occasionally map makers will shorten this term township to town. Such an abbreviation is not only incorrect but confusing since the term town in Wisconsin refers to a political subdivision of a county.

ONE SECTION OF LAND

Each section of land is divided into 160 acre quarter sections designated as the Northwest quarter (NW 1/4), Southwest quarter (SW 1/4), Northeast quarter (NE 1/4), Southeast quarter (SE 1/4).



	Rods	Links	Chains	Furlongs
1 Chain	4	100	1	.1
1 Furlong	40	1000	10	1
1 Mile	320	8000	80	8

1 Acre = 160 square rods = 10 square chains

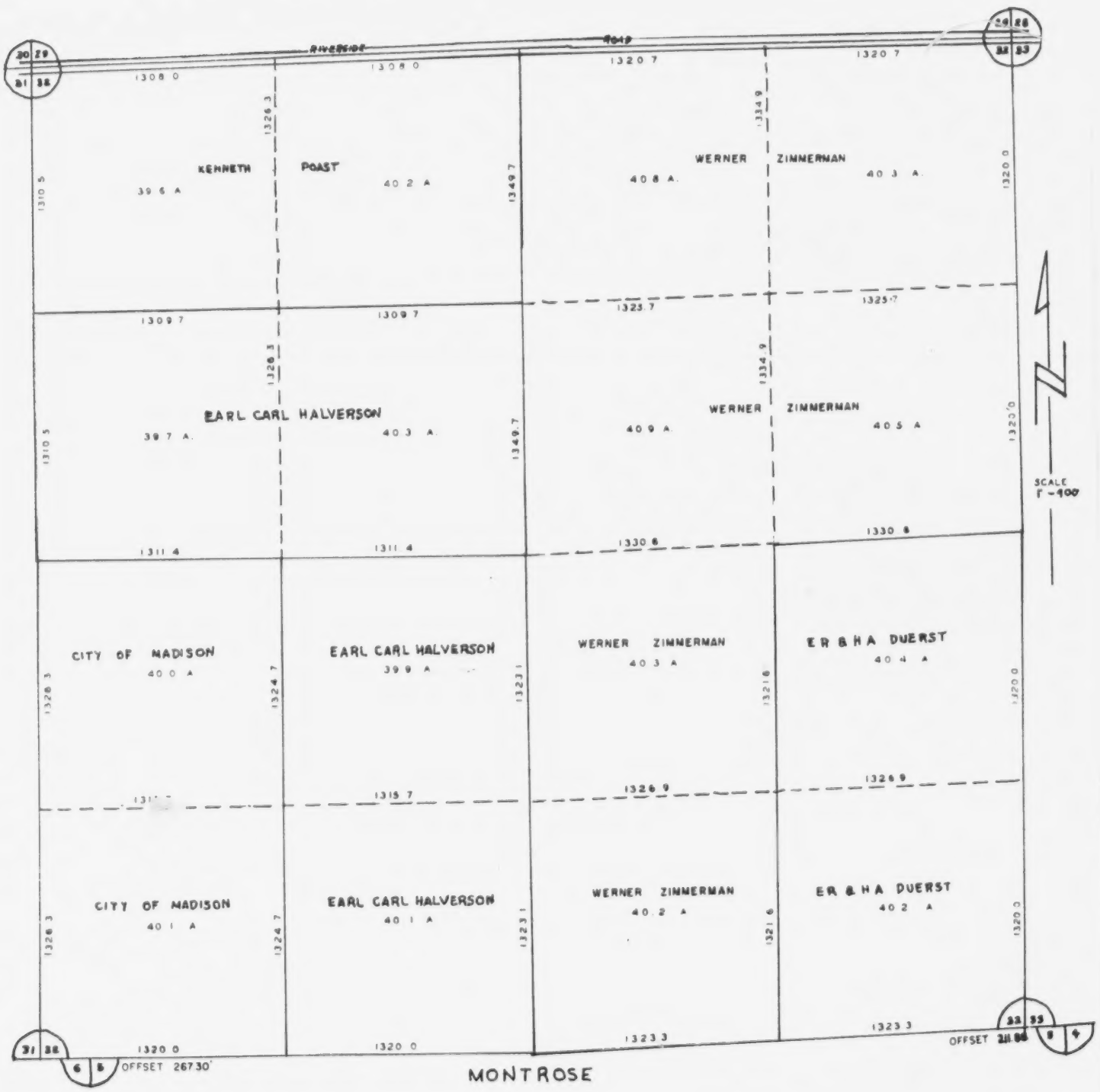
14

The property marked "City of Madison" on this map is part of the Madison School Forest

TOWNSHIP OF VERONA

32

SEC. 32 T. 6 N. R. 8 E.



A quarter of one quarter section would contain 40 acres. Then half of one quarter section would contain 80 acres. Thus the 80 acre parcel of land on this map belonging to the City of Madison is described as:

The West One-half (W 1/2) of the Southwest One-quarter (SW 1/4) of Section 32, Township Six North (T6N), Range Eight East (R8E), Dane County, Wisconsin.

SOME COUNTY BOUNDARIES

as described in the Wisconsin Statutes,
Chapter 2.

(10) CLARK: Beginning at the southeast corner of township twenty-three, of range one east of the meridian aforesaid; thence north on the range line to the northeast corner of township twenty-nine, of range one east; thence west on the township line to the northwest corner of township twenty-nine, of range four west; thence south on the range line to the southwest corner of township twenty-four, of range four west; thence east on the township line to the southeast corner of said township twenty-four, of range four west; thence south on the range line to the southwest corner of township twenty-three, of range three west; thence east on the township line to the place of beginning.

(11) COLUMBIA: Beginning at a point in the north line of township thirteen, of range six east, where the said line intersects the center of the main channel of the Wisconsin river; running thence down the middle of the main channel of said river to a point where the range line between ranges seven and eight east intersect said river; thence south on said range line to the middle of the Wisconsin river aforesaid (in township ten); thence down the middle of the main channel of said river to a point where the north line of township nine intersects the same; thence east on said township line to the southeast corner of township ten, of range twelve east; thence north on the range line to the northeast corner of township thirteen, of range twelve east; thence west on the township line to the place of beginning.

(12) CRAWFORD: Beginning at a point in the western boundary line of this state, in the Mississippi river, opposite the mouth of the Wisconsin river; and running thence easterly up the middle of the main channel of the Wisconsin river to a point where the range line between ranges two and three west of the meridian aforesaid intersects the middle of said main channel; thence north on said range line to the northeast corner of section twenty-four, of township eleven, of range three west; thence west on the section line to the west boundary line of this state, in the main channel of the Mississippi river; thence southerly on said boundary line to the place of beginning.

(13) DANE: Beginning at a point in the center of the main channel of the Wisconsin river where the range line between ranges five and six east of the meridian aforesaid crosses said river; running thence south on said range line to the southwest corner of township five, of range six east; thence east on the township line to the southeast corner of township five, of range twelve east; thence north on the range line to the northeast corner of township nine, of range twelve east; thence west on the township line to the middle of the Wisconsin river; thence down the middle of the main channel of said river to the place of beginning.

(14) DODGE: Beginning at the southeast corner of township nine, of range seventeen east of the meridian aforesaid; running thence north on the range line to the northeast corner of township thirteen, of range seventeen east; thence west on the township line to the northwest corner of township thirteen, of range thirteen east; thence south on the range line to the southwest corner of township nine, of range thirteen east; thence east on the township line to the place of beginning.

(15) DOOR: Beginning on the west shore of Lake Michigan where the south line of township twenty-six intersects Lake Michigan; running thence west on the township line to the center of Green Bay; thence northeasterly along the center of the main channel of Green Bay to the boundary line between the states of Michigan and Wisconsin; thence along said boundary line between the state of Michigan and the state of Wisconsin to a point in Lake Michigan where the east and west line on the south side of township twenty-six, extended easterly, would intersect the eastern boundary of the state of Wisconsin; and from thence west to the place of beginning.

WORKS OF AMERICAN ARTISTS USED AS ILLUSTRATIONS IN TOWNS AND TOWNSHIPS

Frame 5 Engraving, probably by William and Thomas Birch around 1799, called "Market Place", Free Library of Philadelphia.

Frame 7 Currier and Ives lithograph of an oil painting by John Trumbull, "Surrender of General Burgoyne at Saratoga, N. Y., October 17, 1777."

Frame 8 Engraving of Independence Hall (then called the State House) by William and Thomas Birch, 1799, called "Meeting Place", Free Library of Philadelphia.

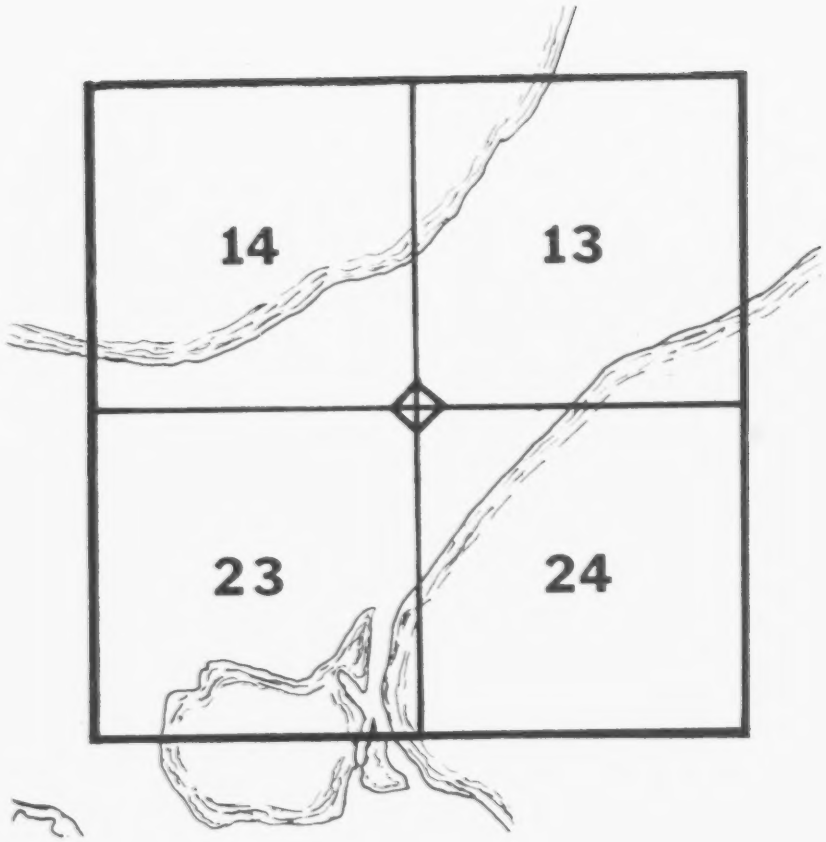
Frame 10 An unfinished painting by Thomas P. Rossiter, begun in 1850. "The Founding Fathers of the Federal Convention," Independence Hall Collection.

Frame 12 Detail from an oil sketch by John Trumbull, Yale University Art Gallery.

Frame 13 Painting by Edward Hicks, "The Residence of David Twining, 1787," Abby Aldrich Rockefeller Folk Art Collection, Williamsburg.

Frame 15 A portrait of Thomas Jefferson painted by Charles Wilson Peale in 1791, Independence Hall Collection.

Frame 22 Currier and Ives lithograph of a painting by Arthur Fitzwilliam Tait, "The Life of a Hunter."

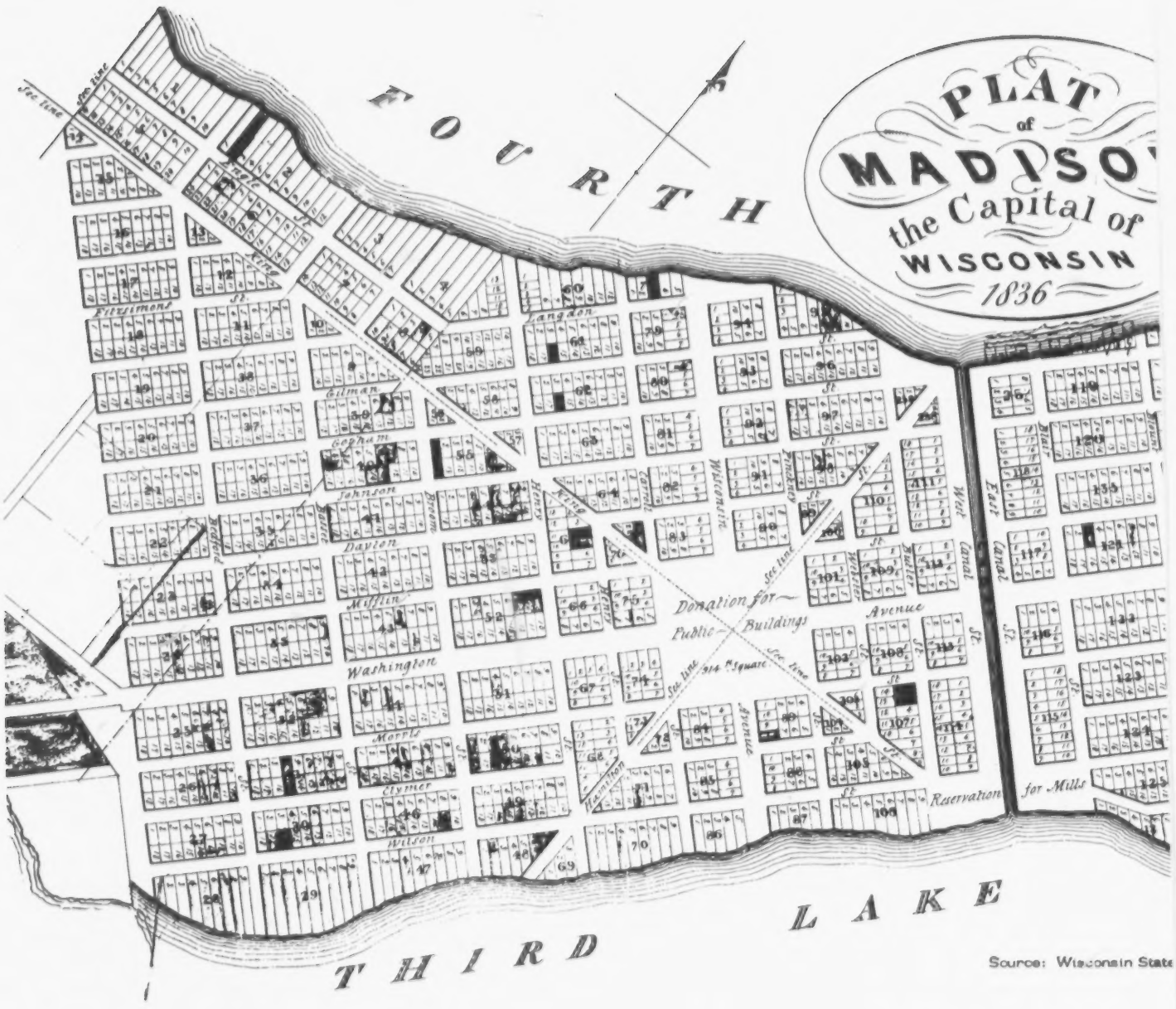


The corner at which these four sections meet is located directly under the dome of Wisconsin's capitol building in Madison — on the isthmus between Lakes Mendota and Monona.

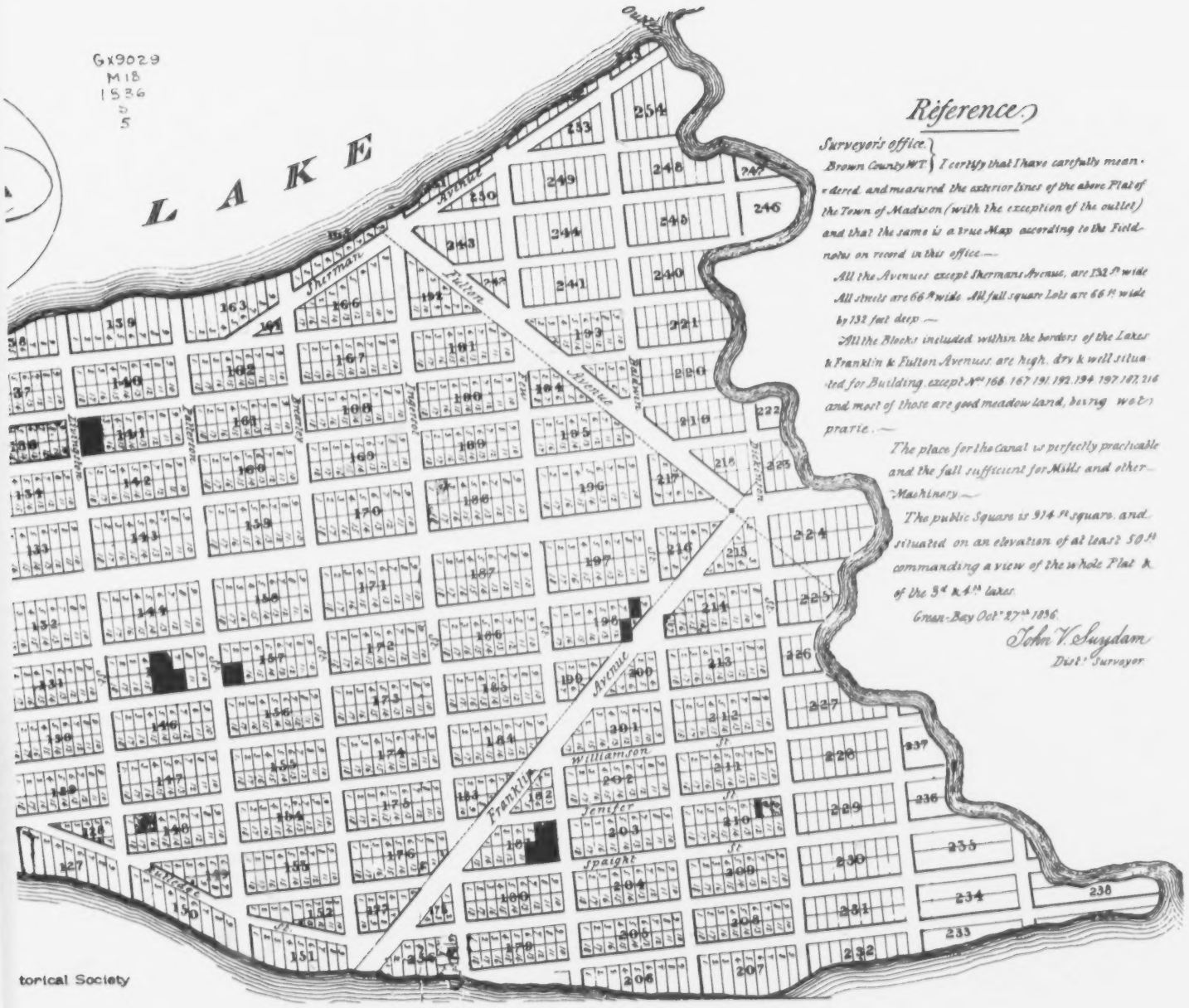
The streets leading from each corner of the Capitol Square follow the section lines.

Sections 13, 14, 23, and 24
Township 7 North Range 9 East
of the
4th Principal Meridian

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36


PLAT
of
MADISON
the Capital of
WISCONSIN
1836
FOURTH
THIRD
LAKE
Sec line
Fitzsimons
Gilman
Gorham
Johnson
Broom
Davion
Mifflin
Washington
Morris
Clymer
Wilson
Langdon
Wisconsin
Henry
Hamilton
Donation for
Public
Buildings
Square
Avenue
Reservation
for Mills
Canal
Source: Wisconsin State

Gx9029
M18
1536
p
5



Reference

Surveyor's office.
Brown County WT } *I certify that I have carefully meandered and measured the exterior lines of the above Plat of the Town of Madison (with the exception of the outlot) and that the same is a true Map according to the Field-notes on record in this office.—*

All the Avenues except Shermans Avenue, are 132 ft wide All streets are 66 ft wide. All full square Lots are 66 ft wide by 132 feet deep.—

All the Blocks included within the borders of the Lakes & Franklin & Fulton Avenues are high, dry & well situated for Building, except Nos 166. 167. 191. 192. 194. 197. 167. 216 and most of those are good meadow land, being wet prarie.—

The place for the Canal is perfectly practicable and the fall sufficient for Mills and other Machinery.—

The public Square is 914 ft square, and situated on an elevation of at least 50 ft commanding a view of the whole Plat & of the 3d & 4th lakes.

Green-Bay Oct. 27th 1836.

John V. Suydam
Dist. Surveyor.

torical Society

Reproduction of original Doty Plat Map

TOWNS AND TOWNSHIPS

Part I

1. In 1785 the newly formed United States owed a large sum of money to European creditors for _____.

2. Our founding fathers decided to sell _____ as a source of revenue to pay that debt.

3, 4, 5, 6, 7. The Northwest Territory was made up of the present states of _____, _____, _____, _____, and, _____.

8. The Land Ordinance of _____ provided for the rectangular survey of public lands.

9. This law provided for surveying the land in _____ mile square TOWNSHIPS.

10. These townships would be sub-divided into _____ mile square SECTIONS.

11. Sections could be sub-divided into quarter-sections of _____ acres each.

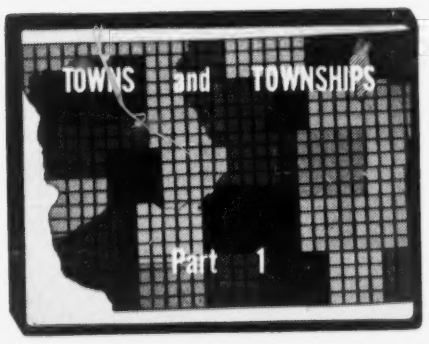
12, 13. For the most part the surveyors used only two simple tools for this survey, the _____ and the 66 foot _____.

14, 15, 16. In _____ Congress passed the Homestead Act whereby a settler could obtain _____ acres of land free by filing a claim and settling on the land for _____ years.

17, 18, 19, 20. The grid pattern of the rectangular survey influenced _____, _____, _____, and _____.

compass	6	road locations
Wisconsin	one	farm boundaries
Michigan	160	Revolutionary War debts
1785	160	the Northwest Territory
Illinois	5	
1862	field shapes and plowing patterns	
Ohio	community shapes and patterns	
Indiana	surveyor's chain	

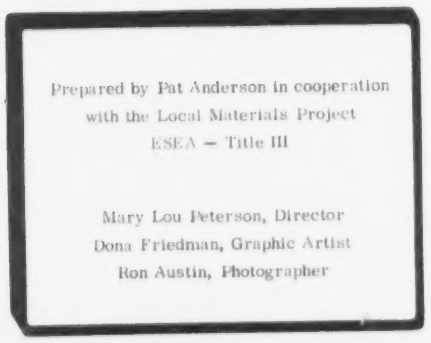
1
Colophon



2
Title
TOWNS AND TOWNSHIPS
Part I

SPECIAL NOTE:

Please do not judge the quality of the beautiful full-color pictures in the filmstrip by the appearance of the black-and-white photos in this guide! Obviously, there is no comparison between full-color and black and white pictures.


Prepared by Pat Anderson in cooperation
with the Local Materials Project
ESEA — Title III
Mary Lou Peterson, Director
Dona Friedman, Graphic Artist
Ron Austin, Photographer

3
Credit Frame

4
Do you have any idea why the Wisconsin capitol building is located precisely where it is on the isthmus in Madison? One important event which influenced the choice of this exact spot occurred in 1785 — long before anyone knew there would be a State of Wisconsin and even before the United States Constitution was written.

Note To Teachers:

The basic public land survey pattern of six mile square townships and mile square sections was established by the Land Ordinance of 1785. However, after the first seven ranges were surveyed in eastern Ohio in 1786, the pattern was interrupted by private land holdings west of the survey. In 1796 Congress re-established the rectangular survey system and in 1804 provision was made in law for base lines and meridians to control the location of ranges and towns. Consequently, it might be more proper for us to say that some events in 1785 and some events in 1804 influenced the choice of location for Wisconsin's capitol building. See U.S. Dept. of Interior map of Principal Meridians of the Federal Systems of Rectangular Surveys elsewhere in this booklet.

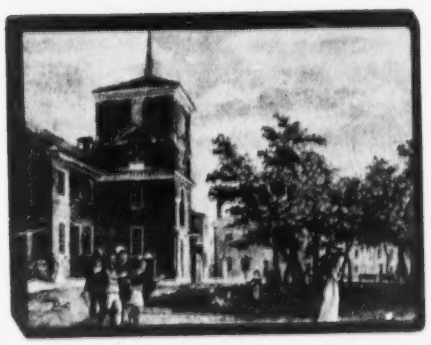
5
In 1785 the population of the United States was concentrated along the eastern coast. This engraving shows one of the main streets in Philadelphia which was one of the country's major cities and center of government for the new nation. (Engraving "Market Place")

[We should note that North America had a city of over 100,000 long before Columbus discovered America. Tenochtitlán, the great Aztec capital, stood on the site of present-day Mexico City. We might also note that the first printing press in North America was used in Mexico City in 1536, long before the days of Benjamin Franklin!]

6
At that same time, the Madison area probably looked like this.

7
Just two years before, the American Revolution had ended, and our founding fathers were faced with the problems of a large debt for the cost of the war, but no sources of revenue to pay that debt.

(Currier and Ives lithograph of oil painting by John Trumbull)



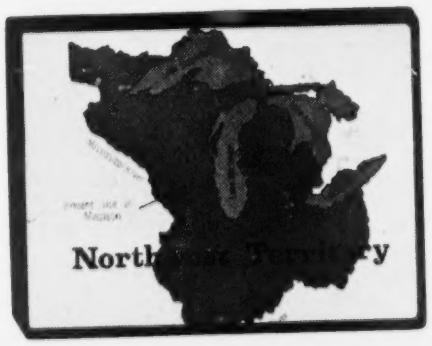
8
The young Republic was still operating under the Articles of Confederation which did not provide a strong central government. (Engraving of Independence Hall by William and Thomas Birch, 1799)

[The Congress of the Confederation, established by the Articles of Confederation, operated the United States government from March, 1781 to March 4, 1789. It replaced the Continental Congress, and was replaced by the Congress established by the United States Constitution. The Congress of the Confederation had no power to tax. Congress could authorize expenditures, but had to rely upon states for contributions to pay bills.]

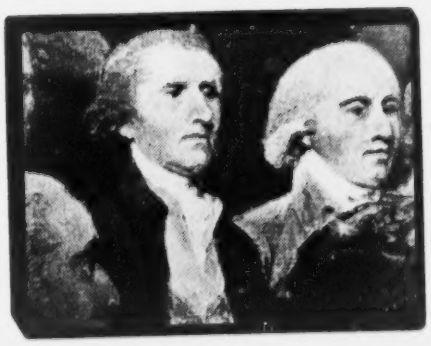
9
One of the few bonds of union among the original thirteen states (here shown in green) was their jointly owned property (here shown in red). It included a vast area west of Pennsylvania and north of the Ohio River.

10
The Congress of the Confederation, having no power to tax, naturally considered the sale of these public lands as a source of income to pay their European creditors who had helped to finance the Revolution.

(Unfinished oil painting by Thomas P. Rossiter, 1850)



11
This land became known as the Northwest Territory and consisted chiefly of the present states of Ohio, Indiana, Illinois, Michigan, and Wisconsin.



12
The leaders of the young nation were not fully aware of the potential and the variety of resources in this territory which included over 200,000 square miles of some of the richest farmland in the world. However, the Congress did know that it needed a cheap and simple way of surveying and describing the land for sale. Without such a system the infinite variety of odd-shaped farms with over-lapping and conflicting claims could have produced chaos for the settlers in this territory.

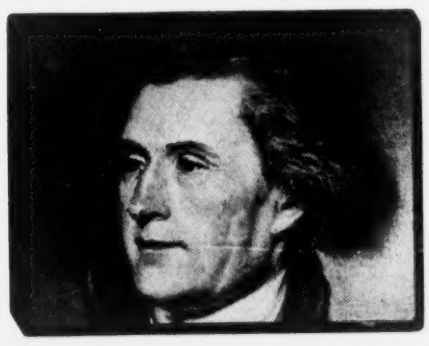
(A detail from oil sketch by John Trumbull)

13
This was to be of particular importance in the following century when the number of American farms increased from 1-1/2 million to nearly 6 million in just 50 years.

[1,449,000 to 5,737,000 between 1850 - 1900]

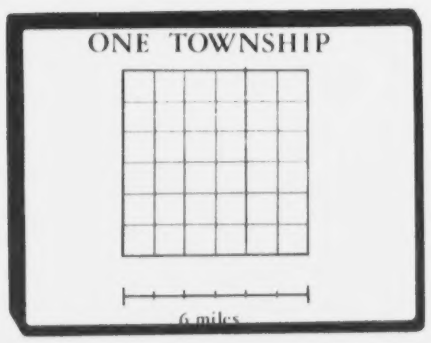
(Painting of the Residence of David Twining, 1787, by Edward Hicks)

14
Under such conditions the age-old problems of land ownership (territorial rights?) might have produced thousands of legal disputes if the young nation had not agreed upon a simple and accurate way of measuring and describing the land.

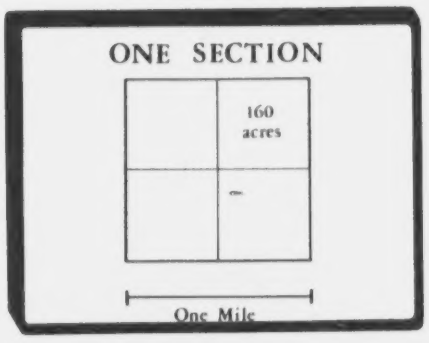


15
Thomas Jefferson was one member of the committee appointed by the Congress of the Confederation to work out a method of surveying the land in the Northwest Territory. The committee's recommendations were set forth in the Land Ordinance of 1785.

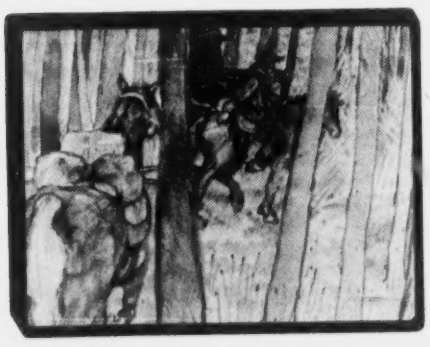
(A portrait of Thomas Jefferson painted by Charles Wilson Peale, 1791)



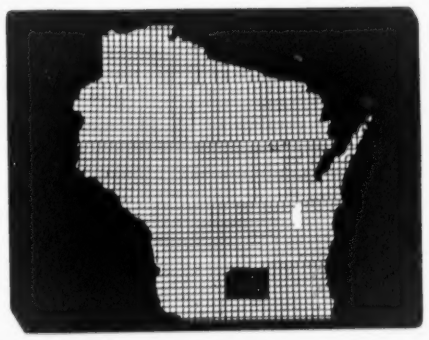
16
This law provided for rectangular six-mile townships which would in turn be divided into one-mile square sections.



17
The one-mile square sections could then be divided again into quarter-sections, each quarter section containing 160 acres.



18
Think of the surveyors who went into the wilderness of the old Northwest to measure and mark off the six-mile square townships. Well over 200,000 square miles of land to be marked off into six-mile squares! The job took many years — beginning in Ohio in 1786.



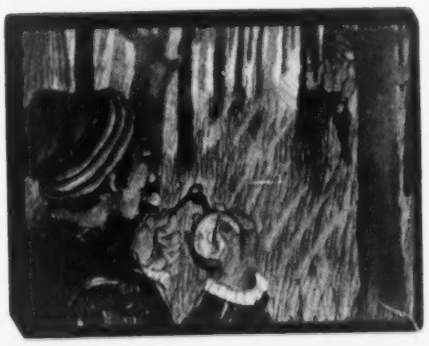
19
It took about thirty years to survey all of Wisconsin. Most of that work was done between 1830 and 1860.

20
For the most part the surveyors used only two simple tools, the compass . . .

21
. . . and special 66 foot surveyor's chain. Although their measurements were far from perfect, the accuracy of their survey was quite remarkable — considering the primitive nature of their tools . . .

22
. . . and the difficult conditions under which they worked.

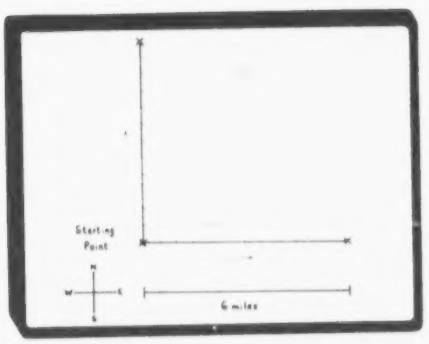
(Currier and Ives lithograph of painting by Arthur Fitzwilliam Tait)



23
Using the compass the surveyors determined a north-south line. Then with the 66 foot length of chain, they measured northward along that line, . . .

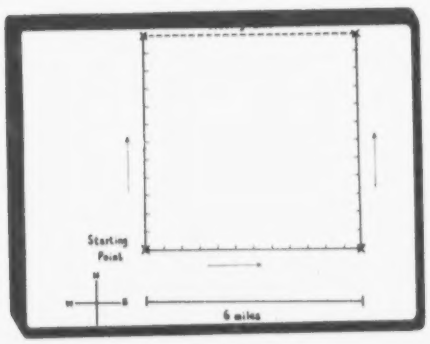
24

. . . marking their trail every 40 chains (one-half mile) with stakes driven into the ground — or with stumps, piles of rocks or whatever materials were available.



25

After marking a north-south line, the surveyors would then measure an east-west base line, again setting some kind of marker every 40 chains. Six miles from the starting point surveyors would set the monument which marked one corner of the township.

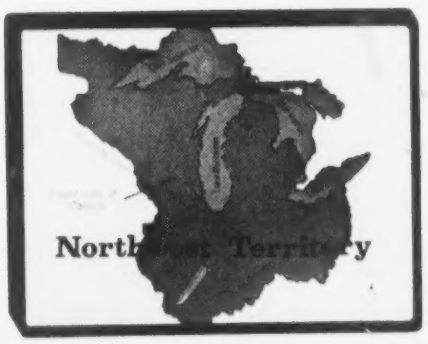


26

From that point they would measure a line true north for another six miles — still placing monuments every 40 chains. Having now established and monumented all four corners, the closing line would be run, thus completing the outline of a township.

27

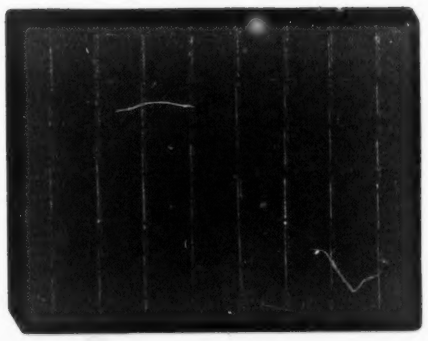
Usually the sub-division of the township into mile sections was done at a later time and often by a different surveyor. But the careful field notes provided by the original surveyors and the monuments set for the township boundaries provided a good start for the later surveyors to subdivide the townships into one-mile square sections.



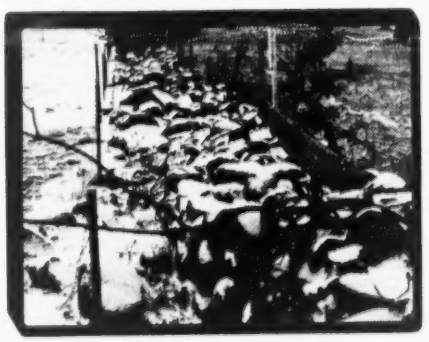
28

Thus the public land survey continued over the years until all of the Northwest Territory had been measured off into six-mile square townships and subdivided into the 36 individual square mile sections.

27

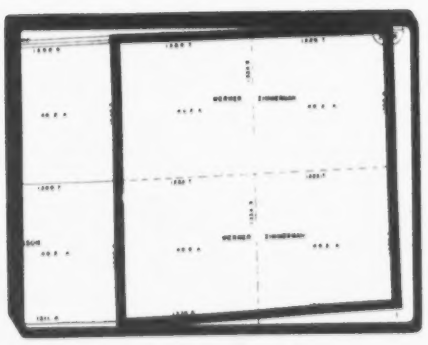


29
The grid pattern mapped by this survey was to have many long range effects on the territory. For example, it affected the patterns of our agricultural lands.



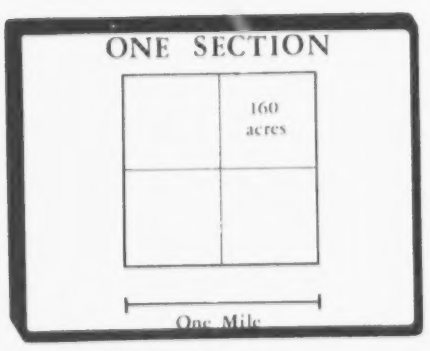
30
As one writer observed, "Section lines drawn straight and clearly marked, like good New England fences, make good neighbors, or at least neighbors not at law over property boundaries."

(Triple fence row)

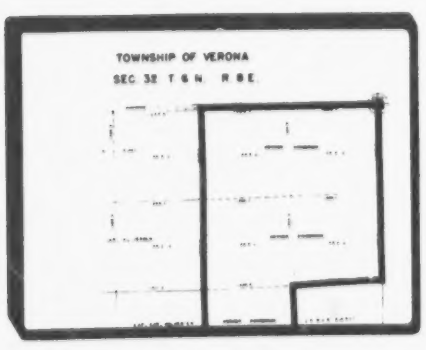


31
A present day plat map of rural Wisconsin will show you that even today the boundaries of many farms follow the old section and quarter-section lines provided for in the Land Ordinance of 1785.

(Rural area near Madison School Forest)



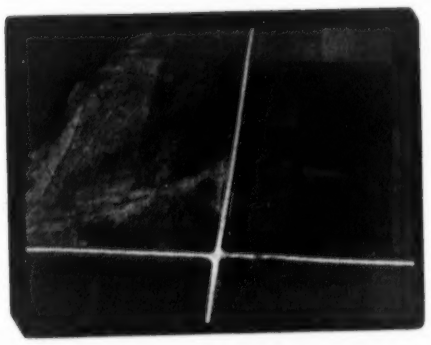
32
Any single section can easily be divided into quarter sections since the surveyors originally placed monuments every half mile. Each quarter section would then contain 160 acres. In 1862 the United States Congress passed a Homestead Act to encourage western settlement. Under this law any settler could obtain a quarter section of land or 160 acres free simply by settling on the land for five years and filing a claim.



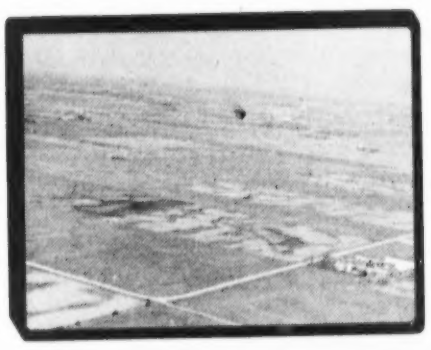
33
Even today you can find the continuations of these homestead farms in Wisconsin. Often, of course, the original 160 acres has been added to in later years as new farming equipment has made it possible for one man to cultivate larger areas.

(Rural area near Madison School Forest)

28



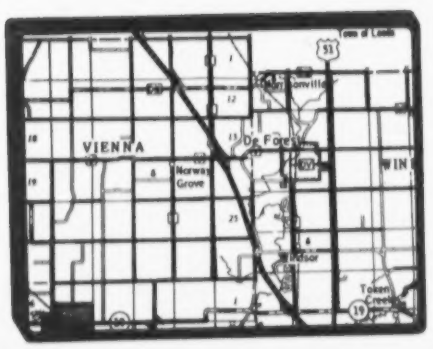
34
The rectangular survey influenced more than farm boundary lines. The straight lines of the quarter sections had a great influence on the shape and size of farmers' fields.



35
Field shape in turn influenced plowing patterns and for years many farmers plowed straight up and down hills and valleys following fence lines but creating problems of soil erosion. This picture shows such patterns in a flat area, but imagine the consequences of such patterns in hilly areas.

36
Not until recent years did many farmers begin contour plowing which slows down the flow of rain waters over the ground surface and helps prevent erosion.

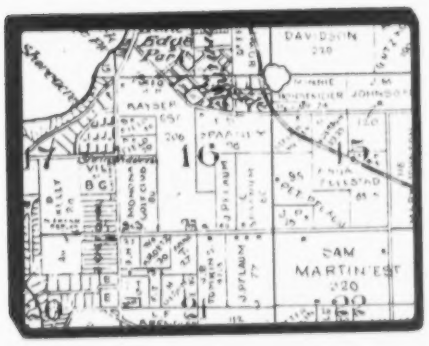
37
The surveyor's lines also influenced the location of rural roads. During the 19th century, these roads were often located along township lines or section lines — or even quarter-section lines on the assumption that such roads would not cut through a farmer's fields.



38
If you look at a map of Dane County, you will see how often country roads still follow these lines. This shows a close-up of a portion of Dane County north of Madison. Here we have marked in red the roads which follow section lines. (Notice also Highways 51 and 19.)

39

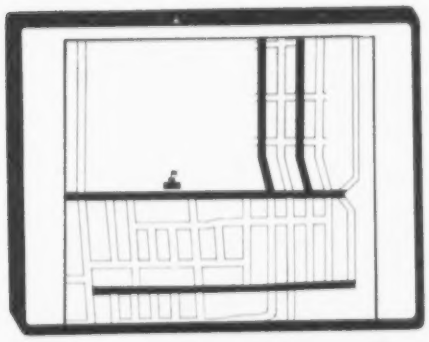
As a matter of fact, city streets often follow these same lines. In many cases the road bed and right-of-way had been well established when the area was still rural. As urban areas expanded into rural areas, the old country roads often became the city streets.



40

Take a look at this old plat map. Here you can find the names of the families who farmed the area near Madison's LaFollette School about 50 years ago.

(Plat Map, 1926)



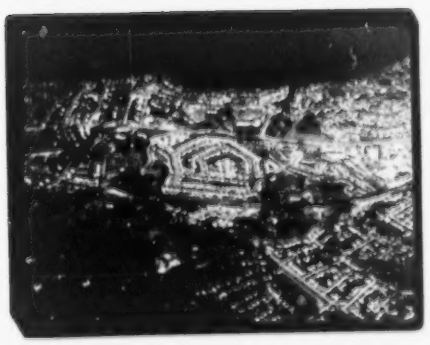
41

Notice how some of these names are preserved in the street names of the modern city. See if you can find similar carry-overs in your own neighborhood.

42

The grid pattern of the rectangular survey also influenced patterns of growing communities. For example, in the older parts of Madison the streets usually follow a grid pattern. Curving streets which follow the land are common only in the newer parts of the city, . . .

(Map contrasting streets of central city and Hill Farm area of Madison)



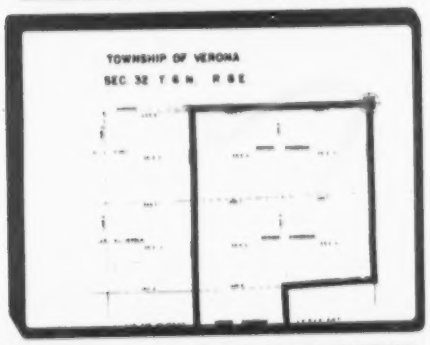
43

. . . and such streets promote a very different community pattern.

44

The old surveying grid influenced still another aspect of Wisconsin life — local government. But that's another story in itself. Before we begin that story, let's think back over the things we've learned so far.

(Old Dane County Courthouse)



45

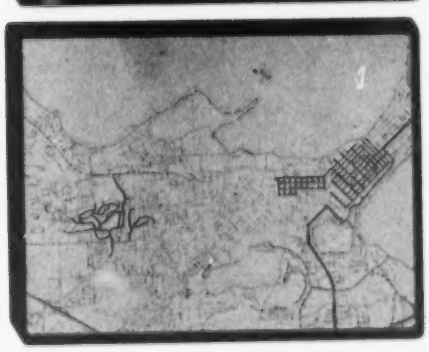
We already know that the grid pattern of the survey of the Northwest Territory influenced farm boundaries, . . .

46

. . . field shapes and plowing patterns, . . .

47

. . . road locations, . . .



48

. . . and community shapes and patterns.

49

End of Part I

[Note to Teacher: It is suggested that the material presented in Part I (frames 4-48) be reviewed and discussed by the class before Part II is presented.]

TOWNS AND TOWNSHIPS

Part II

1, 2. Most county boundaries follow either _____ or _____ such as lakes or rivers.

3. The territorial legislature recognized the need for sub-dividing counties into smaller districts which it called _____.

4. The term _____ in Wisconsin refers to a political sub-division of a county.

5. The term _____ refers to a 36 square mile surveyor's unit.

6. The boundaries of many _____ in Wisconsin follow the lines marked for the surveyor's townships.

7, 8, 9, 10. The major governmental functions delegated to early towns in Wisconsin included _____, _____, _____ and _____.

11. A village or city in Wisconsin can grow only by adding to itself land from the surrounding _____.

12, 13. Towns were originally established in Wisconsin to govern _____ areas. Villages and cities are established to govern _____ areas.

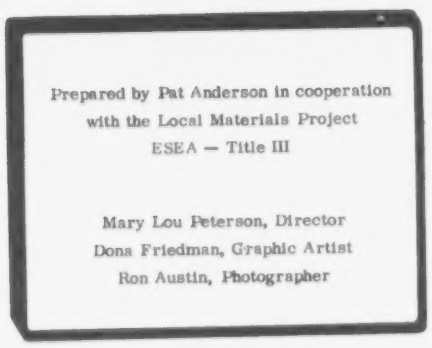
14. The dome of Wisconsin's capitol building in Madison is located directly above the point where four _____ corners meet.

15. Plans for Madison were drawn up in _____.

town	natural boundaries
town	1836
towns	rural
towns	urban
township	section
township lines	conducting elections
establishing schools	building and maintaining roads
collecting taxes	

1
Colophon

2
Title
TOWNS AND TOWNSHIPS
Part II


Prepared by Pat Anderson in cooperation
with the Local Materials Project
ESEA — Title III
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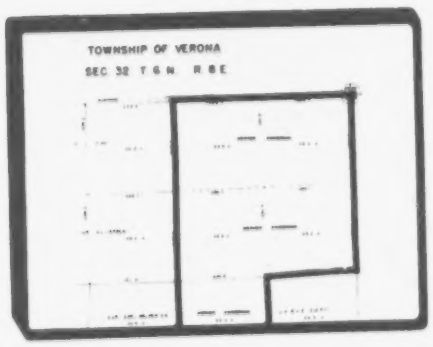
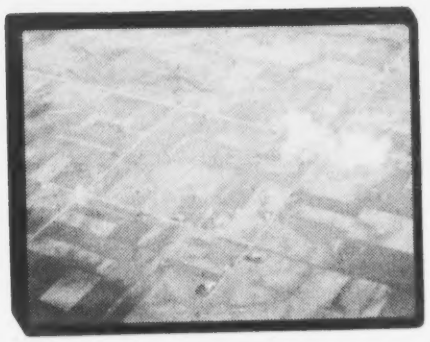
Ron Austin, Photographer

3
Credit Frame

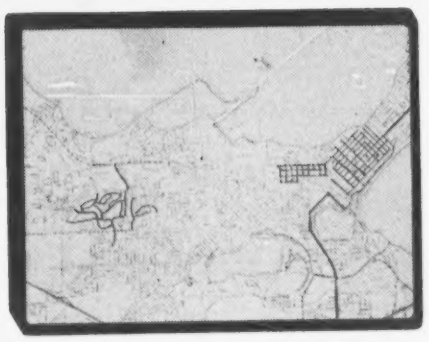


4
We know that the grid pattern of the survey of the Northwest Territory influenced farm boundaries, . . .

5
. . . field shapes and plowing patterns, . . .



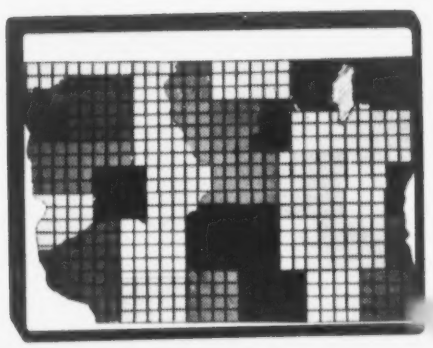
6
. . . road locations, . . .



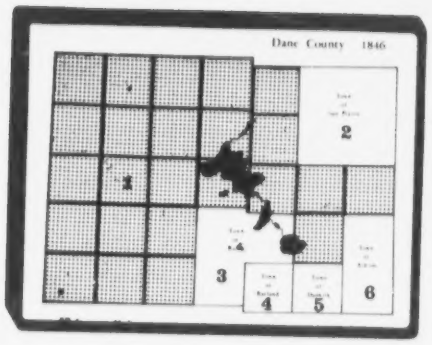
7
. . . and community shapes and patterns.

8
Now let's consider what influence the grid survey had on local government in Wisconsin over one hundred years ago. Later you may want to consider the consequences of those 19th century governmental patterns as they complicate 20th century problems of rapid urban growth. Under territorial government, counties provided local government services to the settlers in Wisconsin.

(Old Dane County Courthouse)



9
Look at the boundaries of these counties in the southern part of the state. You will notice that most county boundaries follow either township lines or natural boundaries such as rivers or lakes.



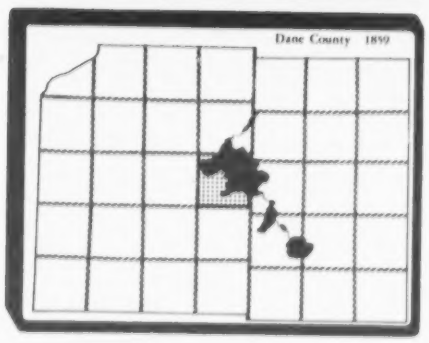
10

The territorial legislature had recognized the need for subdividing counties into smaller districts for voting purposes. The legislature called these county subdivisions towns. The choice of the term town has caused some confusion in Wisconsin ever since. Elsewhere in the world town is often used simply as another word for village. In addition there is often confusion between the terms town and township. But in Wisconsin a town is a political subdivision of a county. Township refers strictly to the surveyor's unit. In 1846 Dane County was divided into six separate towns or voting districts. These new governmental towns had boundaries which followed the lines marked for the surveyor's townships. The largest town in Dane County was the Town of Madison. When established it contained 24 surveyor's townships.

(Dane County Towns, 1846
Notice old Dane County boundaries shown here.)

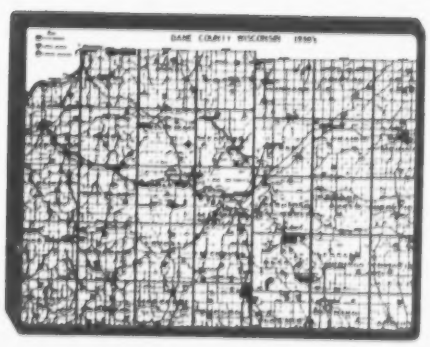
11

But as the population of these rural towns increased, more polling places were needed. Also these rural towns began to take on more governmental responsibilities — such as tax collection, road building, and the establishment of public schools.



12

As the needs and population grew, new towns were formed by dividing the old. The boundaries of these new towns usually followed the lines of the old surveyor's townships. So many new towns were carved out of the old Town of Madison that by 1859, the Town of Madison had been reduced from its original size of nearly 864 square miles to less than 36 square miles. By this time, the boundaries of the town were exactly the same as the boundaries of a single surveyor's township. In other words, it was a six mile square of which much was under Lake Mendota, and another part was being nibbled away by the growing City of Madison.



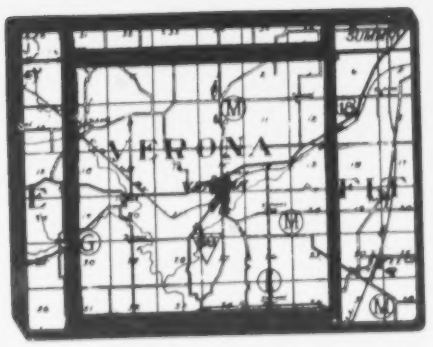
13

Dane County was eventaully sub-divided into 35 rural towns — exactly the same number of towns as there were surveyor's townships in this area.

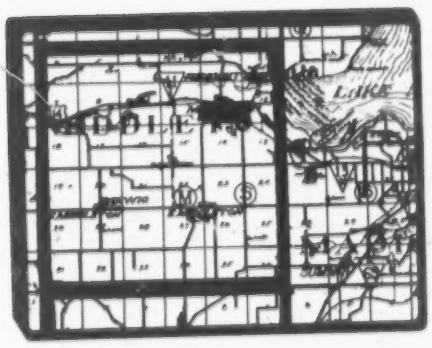
(Dane County Map 1930's)

14
Of these 35 towns in Dane County, 31 now have exactly the same outlines as the outlines of the old surveyor's townships. The four exceptions are the Town of Mazomanie, the Town of Black Earth, . . .

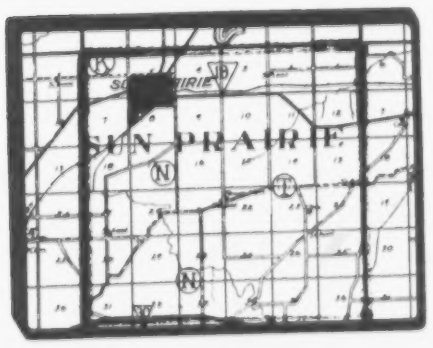
15
. . . and the Town of Westport and the Town of Madison. The area here shown in red was removed from the Town of Madison in 1961 and given to the Town of Westport. Can you figure out the reasoning behind this?



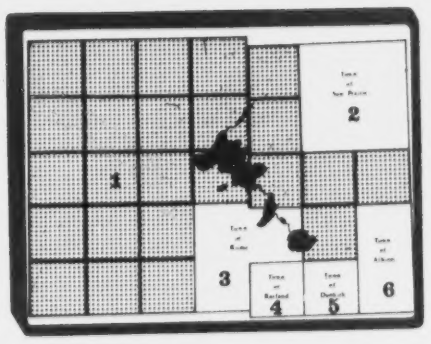
16
Remember once again that when we talk about towns in Wisconsin, we are talking about subdivisions of the county — set up to govern rural areas. But often a rural town contains a city or a village which has the same name as the town — and this leads to confusion for those who do not know the difference between the rural government units and the urban government units. Let's look at some examples. There is a Village of Verona (shown here in red) and a Town of Verona (outlined in blue).



17
There is a City of Middleton (shown here in red) and a Town of Middleton (outlined in green).

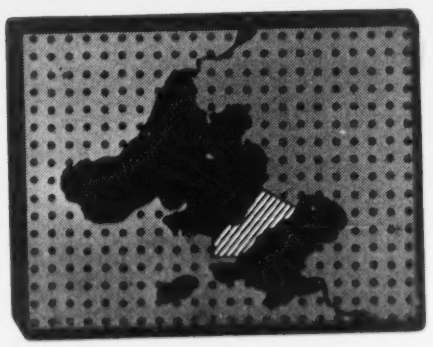


18
There is a City of Sun Prairie (in red) and a Town of Sun Prairie (outlined in yellow).

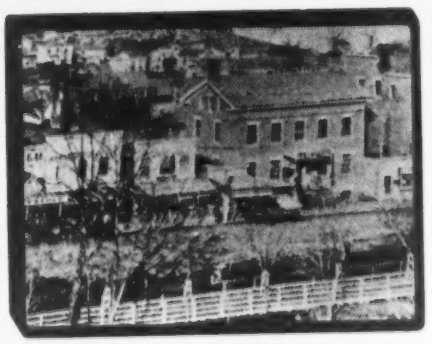


19
Now what happens to a town when a village or city within that town begins to grow? Let's consider the Town of Madison as an example. You will remember that in 1846 the Town of Madison covered most of Dane County.

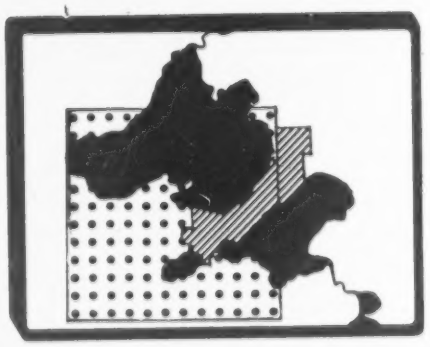
[Present Dane County boundaries were established in 1849; notice northwest corner of county in 1846.]



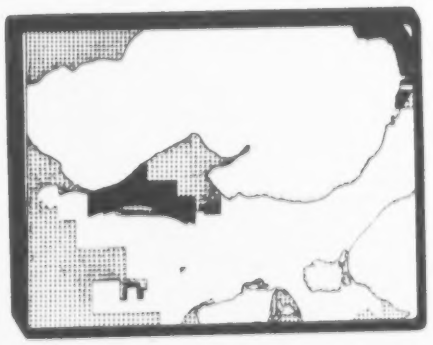
20
The Village of Madison covered just the striped area on the isthmus between Lakes Mendota and Monona.



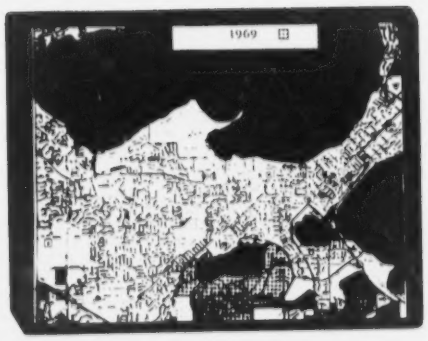
21
But the village kept growing, and it grew to such an extent that by 1859 the village had officially changed into a city.



22
Meanwhile, remember, the exterior boundaries of the Town of Madison had been changing as new towns were established in Dane County, and by 1859 those boundaries were on the six mile square of the surveyor's township. The city kept growing by adding to itself land from the Town of Madison, and by 1859 the city had even grown into an adjoining town to the northeast.



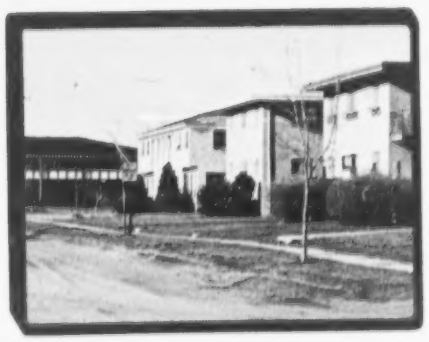
23
In 1927 the area shown in red was incorporated as the Village of Shorewood Hills, thus eating away more of the interior of this six-mile square of town. In 1931 the dark green area in the upper righthand corner was incorporated as the Village of Maple Bluff — and another piece of town was gone. Meanwhile Madison had continued to grow, and by 1952 only the areas shown in yellow remained of the old six-mile square of Town.



24
By 1969 the only large remainders of the Town of Madison were the University Arboretum and the Dane County Fairgrounds. Aside from these, only islands of the town remained. Would you consider any of these islands rural?

25
This island of the Town of Madison is along Park Street.

26
This island is a residential area within the boundaries of the University Arboretum.



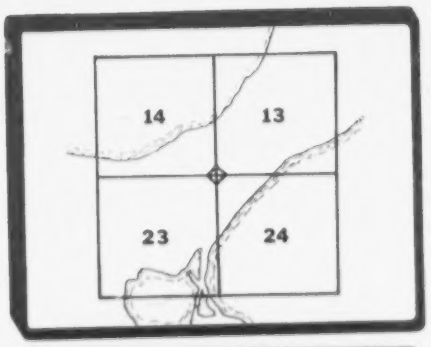
27
This part of the Town is near Badger Road and is completely surrounded by other apartment buildings which are in the City of Madison.

28
Why is it that these areas continue to be under town government which was originally set up in Wisconsin to govern rural areas? But that's another mystery for you to solve, and we haven't yet cleared up the first one we gave you. Remember the beginning of this story?

38 (Town Hall, Town of Madison)

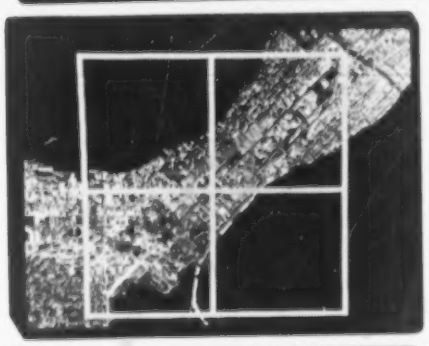
29

We were wondering why the capitol building is located precisely where it is on the isthmus in Madison. We said that one important event which influenced the choice of this exact spot occurred in 1785 — long before anyone knew there would be a State of Wisconsin and even before the United States Constitution was written. What was that early event which had such long range consequences? It was the Land Ordinance of 1785 which established the pattern of the grid survey for the whole Northwest Territory.



30

In 1834 when the surveyors finally got to our isthmus between the two lakes in Wisconsin territory, they staked the corner where these four sections met.



31

Today the location of that marker is right under the dome of Wisconsin's capitol building. It happens that this section corner is located at one of the highest points on the isthmus.

32

Mr. James Doty, who had traveled through this area as a territorial judge, purchased a portion of the isthmus and drew up plans in 1836 for a new city which he hoped would become the capital of the Wisconsin Territory and eventually of the state. If you had been Mr. Doty, where would you have planned to put the capitol building? You might have chosen — as he did — to locate it right at this section corner looking out from the hilltop at the lakes on either side.

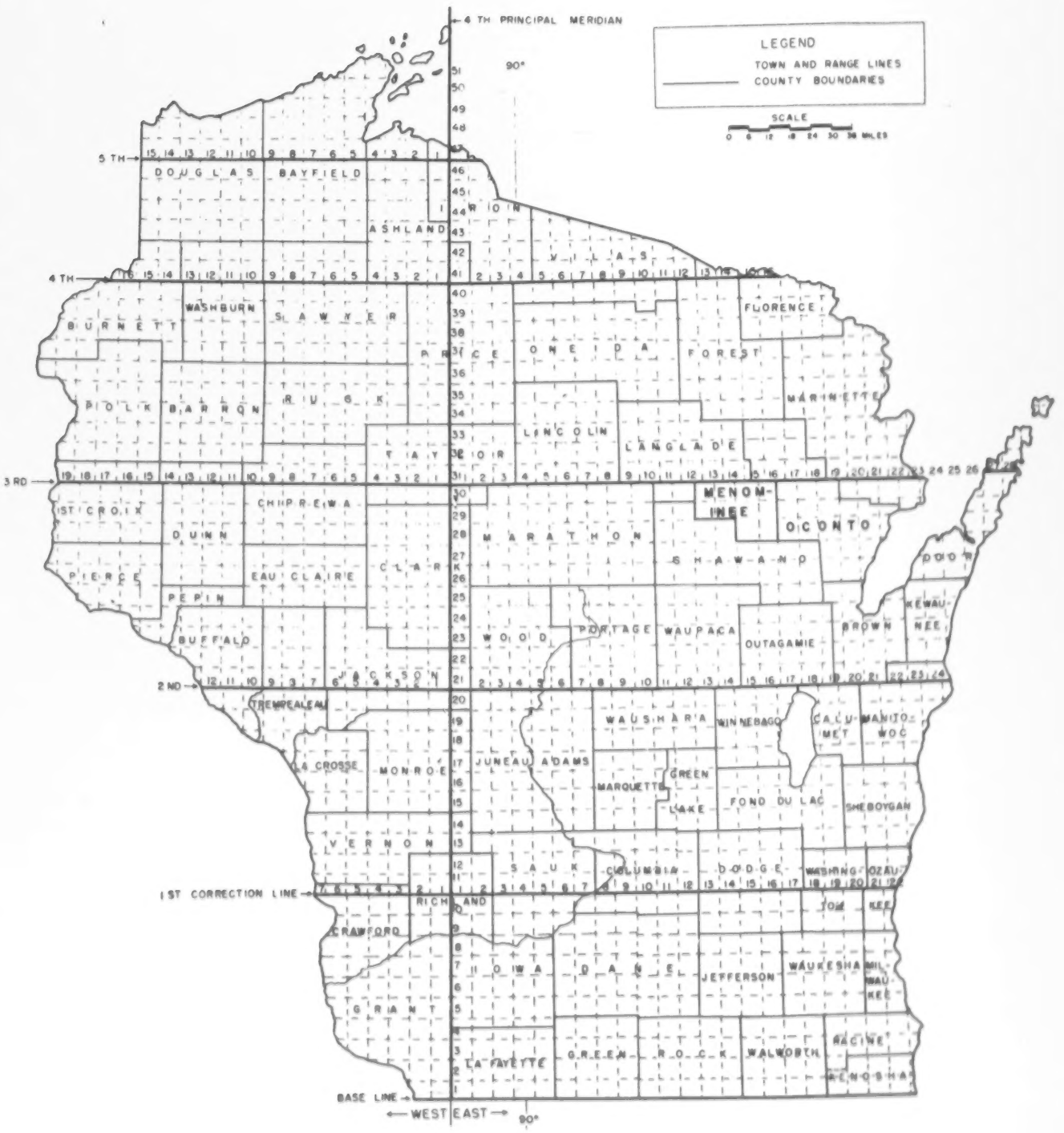
Now that we have played detective and solved that particular mystery, you might like to use the information you've gathered on the effects of the grid survey to examine your own neighborhood. Who knows, you may find some effects of that 1785 decision right in your own back yard!

33

The End.

39

MAP OF WISCONSIN SHOWING THE PRINCIPAL MERIDIAN, BASE LINE, CORRECTION LINES AND NUMBERS OF THE TOWNSHIPS AND RANGES.



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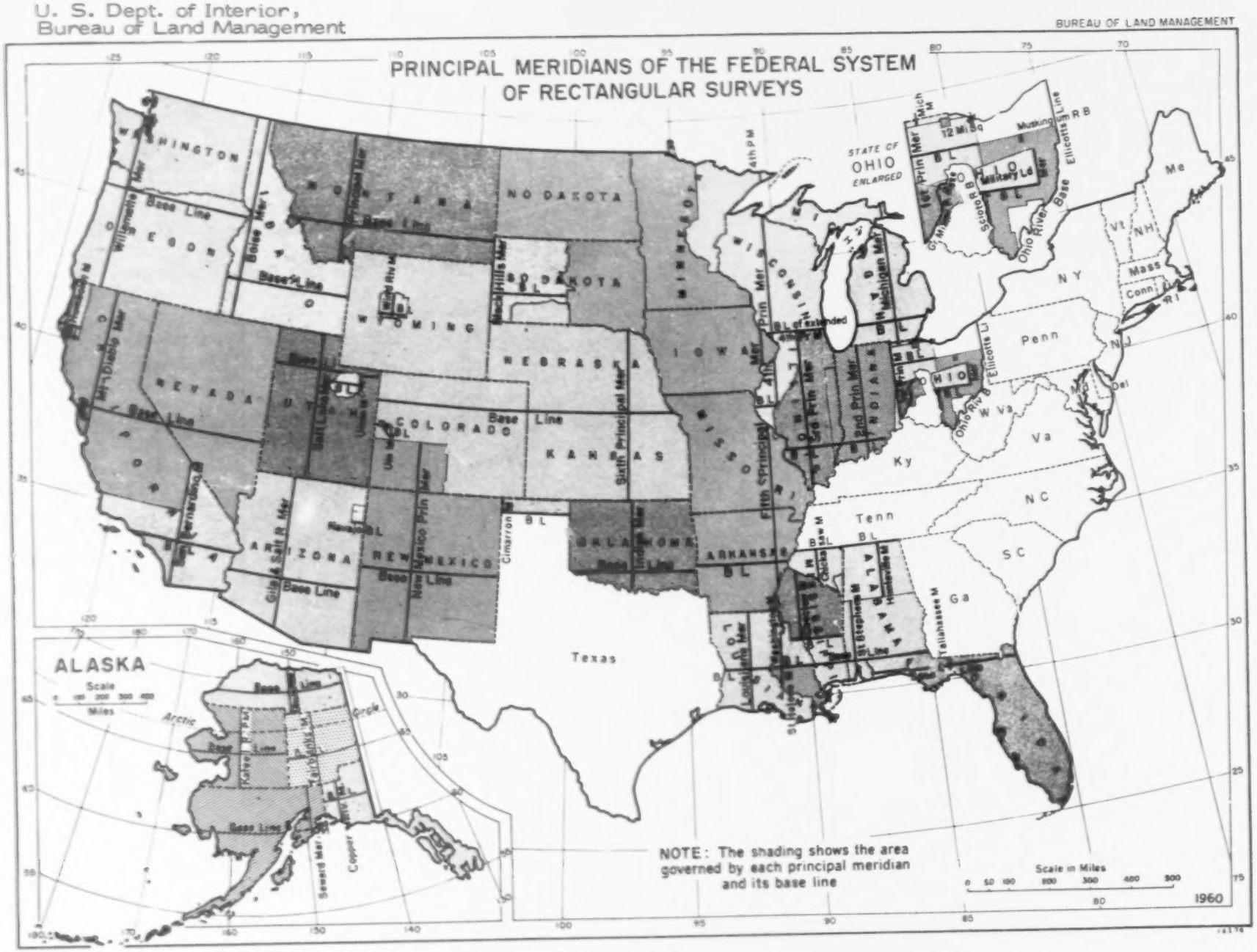
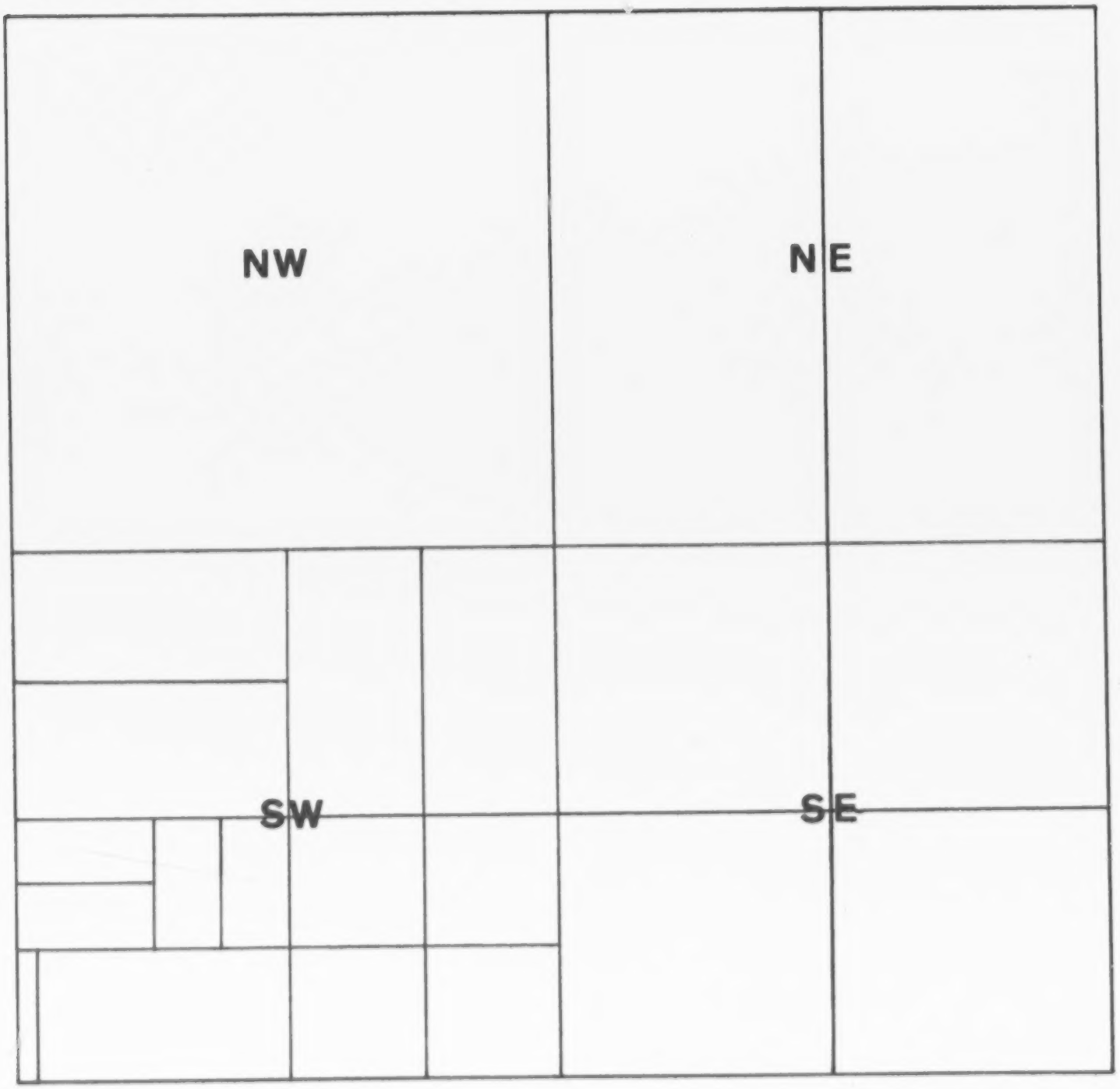
U. S. Dept. of Interior,
Bureau of Land Management



ONE SECTION OF LAND

Each section of land is divided into 160 acre quarter sections designated as the Northwest quarter (NW 1/4), Southwest quarter (SW 1/4), Northeast quarter (NE 1/4), Southeast quarter (SE 1/4).



	Rods	Links	Chains	Furlongs
1 Chain	4	100	1	.1
1 Furlong	40	1000	10	1
1 Mile	320	8000	80	8

1 Acre = 160 square rods = 10 square chains

THE NUMBERING OF TOWNSHIPS AND RANGES

In the public land surveys of the Northwest Territory, government surveyors used a particular numbering system to designate each six-mile square which they surveyed.

The numbering in Wisconsin begins at the intersection of an east-west BASELINE (here the boundary between Illinois and Wisconsin) and a north-south PRINCIPAL MERIDIAN.

Surveyors designated the numbered squares north and south as TOWNSHIPS.* Thus, Dane County includes Townships 5 through 9 North of the baseline.

They designated the numbered squares east and west as RANGES. Dane County includes Ranges 6 through 12 East of the meridian.

A major portion of the City of Madison is located in the center square of Dane County. This square is designated at Township 7 North, Range 9 East.

Apparently an error crept into the survey between Ranges 9 and 10 just above the baseline. The error was perpetuated until the 1st Correction Line, just north of Dane County. This error explains the peculiar jogs in Dane County's boundaries.

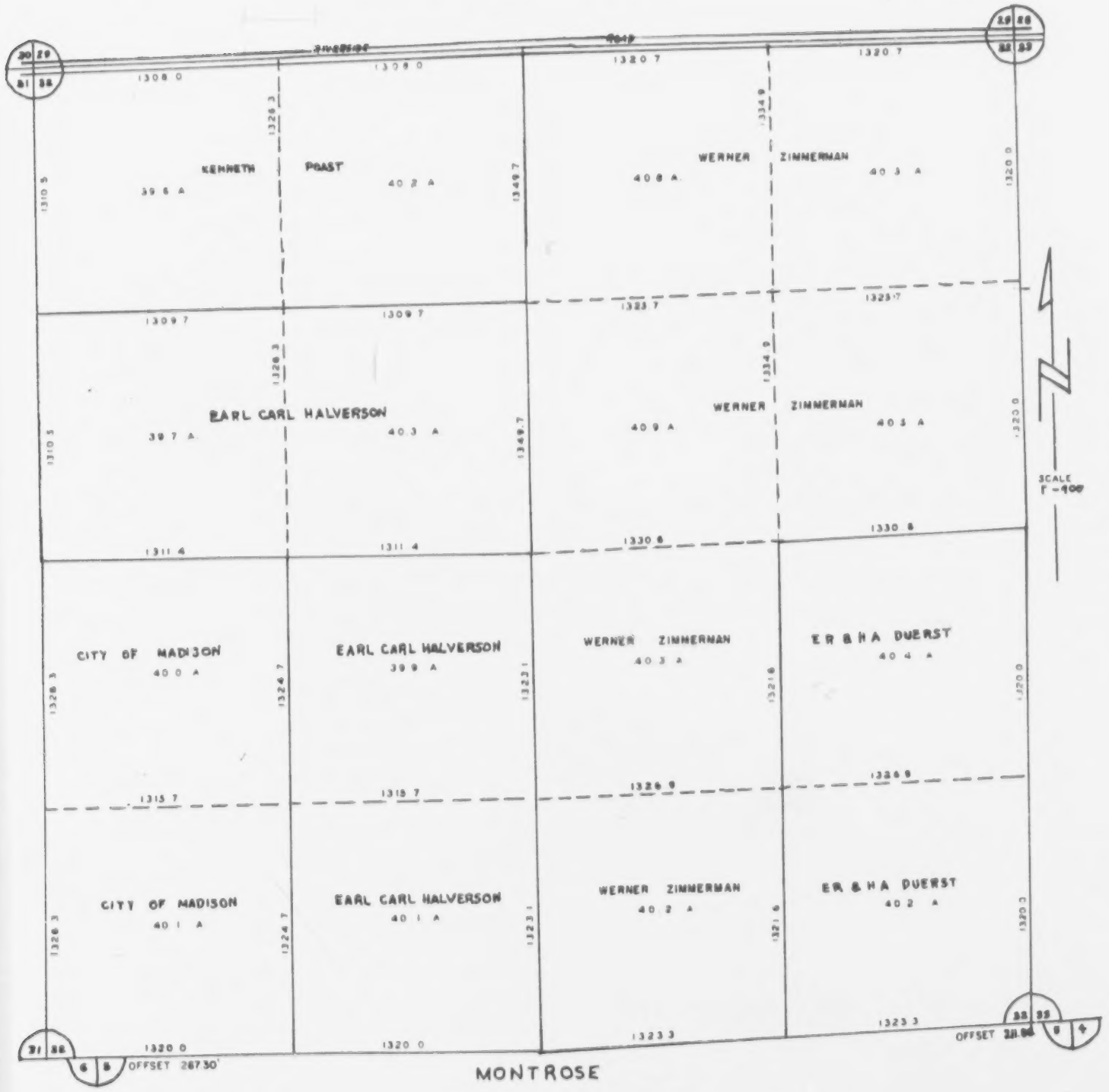
THE NUMBERING OF SECTIONS WITHIN A TOWNSHIP

All government rectangular surveys use a standard numbering system of sections within a township. This makes it easier to describe the precise location of a piece of land and to give an exact legal description of that land.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

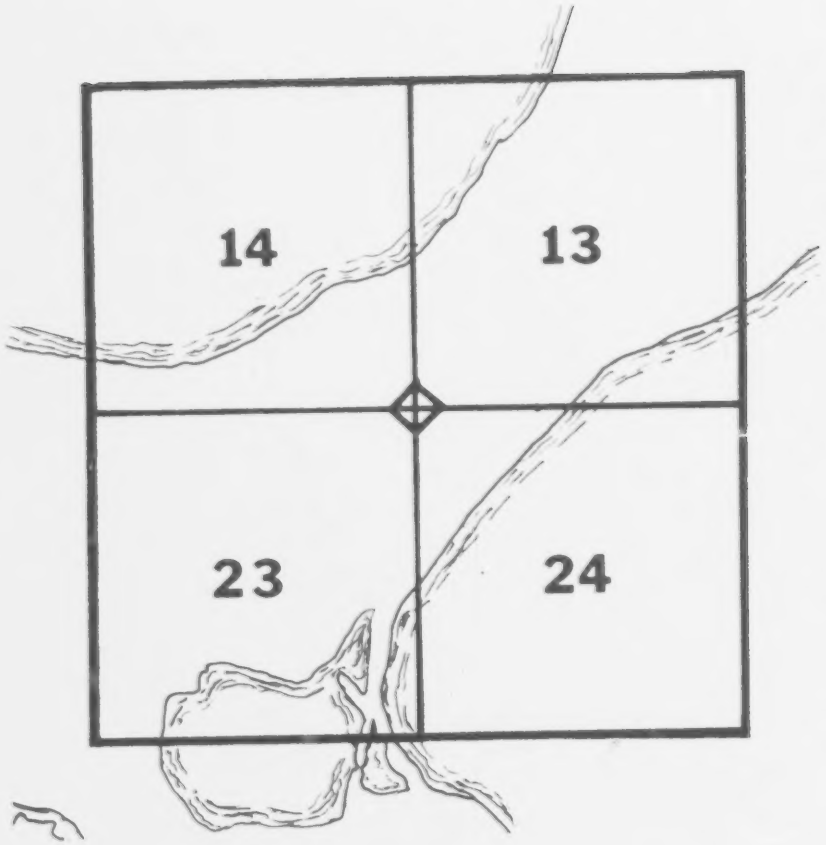
* Occasionally map makers will shorten this term township to town. Such an abbreviation is not only incorrect but confusing since the term town in Wisconsin refers to a political subdivision of a county.

The property marked "City of Madison" on this map is part of the Madison School Forest



A quarter of one quarter section would contain 40 acres. Then half of one quarter section would contain 80 acres. Thus the 80 acre parcel of land on this map belonging to the City of Madison is described as

the West One-half (W 1/2) of the Southwest One-quarter (SW 1/4) of Section 32, Township Six North (T6N), Range Eight East (R8E), Dane County, Wisconsin



Sections 13, 14, 23, and 24
Township 7 North Range 9 East
of the
4th Principal Meridian

The corner at which these four sections meet is located directly under the dome of Wisconsin's capitol building in Madison — on the isthmus between Lakes Mendota and Monona.

The streets leading from each corner of the Capitol Square follow the section lines.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

TOWNS AND TOWNSHIPS

Part II

1, 2. Most county boundaries follow either _____ or _____ such as lakes or rivers.

3. The territorial legislature recognized the need for sub-dividing counties into smaller districts which it called _____.

4. The term _____ in Wisconsin refers to a political sub-division of a county.

5. The term _____ refers to a 36 square mile surveyor's unit.

6. The boundaries of many _____ in Wisconsin follow the lines marked for the surveyor's townships.

7, 8, 9, 10. The major governmental functions delegated to early towns in Wisconsin included _____, _____, _____, _____ and _____.

11. A village or city in Wisconsin can grow only by adding to itself land from the surrounding _____.

12, 13. Towns were originally established in Wisconsin to govern _____ areas. Villages and cities are established to govern _____ areas.

14. The dome of Wisconsin's capitol building in Madison is located directly above the point where four _____ corners meet.

15. Plans for Madison were drawn up in _____.

town	natural boundaries
town	1836
towns	rural
towns	urban
township	section
township lines	conducting elections
establishing schools	building and maintaining roads
collecting taxes	

TOWNS AND TOWNSHIPS

Part I

1. In 1785 the newly formed United States owed a large sum of money to European creditors for _____.

2. Our founding fathers decided to sell _____ as a source of revenue to pay that debt.

3, 4, 5, 6, 7. The Northwest Territory was made up of the present states of _____, _____, _____, _____, and, _____.

8. The Land Ordinance of _____ provided for the rectangular survey of public lands.

9. This law provided for surveying the land in _____ mile square TOWNSHIPS.

10. These townships would be sub-divided into _____ mile square SECTIONS.

11. Sections could be sub-divided into quarter-sections of _____ acres each.

12, 13. For the most part the surveyors used only two simple tools for this survey, the _____ and the 66 foot _____.

14, 15, 16. In _____ Congress passed the Homestead Act whereby a settler could obtain _____ acres of land free by filing a claim and settling on the land for _____ years.

17, 18, 19, 20. The grid pattern of the rectangular survey influenced _____, _____, and _____.

compass	6	road locations
Wisconsin	one	farm boundaries
Michigan	160	Revolutionary War debts
1785	160	the Northwest Territory
Illinois	5	
1862	field shapes and plowing patterns	
Ohio	community shapes and patterns	
Indiana	surveyor's chain	